The Ramakrishna Mission
Institute of Culture Library

Presented by

Dr Baridbaran Mukerji

RMICL 8

19777

GENERAL HYPSOMETRY

FOR REFERENCE ONLY

OF

INDIA,

THE HIMÁLAYA, AND WESTERN TIBET

WITH SECTIONS ACROSS THE

CHAINS OF THE KARAKORÚM AND KUENLÚEN,

COMPRISING, IN ADDITION TO MESSRS. DE SCHLAGINTWEITS' DETERMINATIONS, THE DATA COLLECTED FROM BOOKS, MAPS, AND PRIVATE COMMUNICATIONS.

EDITED BY

ROBERT DE SCHLAGINTWEIT.

WITH THREE PLATES.

LEIPZIG: F. A. BROCKHAUS.

LONDON: TRÜBNER & CO.

MDCCCLXII.

RMIC LIBRARY
Acc. No.
Class No. 915.42
SCH
Date
Lt. Card
Class.
Cat.
Bk. Card
Checked

TO

HIS MOST GRACIOUS MAJESTY

MAXIMILIAN II.,

KING OF BAVARIA.

SIRE,

Your Majesty, with that gracious sympathy ever so readily evinced on behalf of geographical science, has again been pleased to distinguish us with Royal favour by accepting the dedication of the present work, in which it has been our endeavour to contribute to the knowledge of physical geography by collecting the measurements of heights hitherto made in India and High Asia, and combining with the results of former observers the determinations made by ourselves during three years travel in those regions.

The mountain systems of the Himálaya, Karakorúm, and Kuenlúen, include the highest elevations of our globe; yet their geological character, so different from the volcanic nature of the Andes, and their climate so rapidly approaching with increased elevation that of the temperate, and even frigid zone, presented to us, though on a larger scale, surprising analogies with Alpine forms, and suggested, notwithstanding the distance from home, many a cheerful remembrance of the highland territories of your Majesty's dominions, our own native country.

With entire loyalty and profound respect we are

Your Majesty's

most faithful and obedient Subjects

JÄGERSBURG, Sept. 1861.

THE AUTHORS.

PREFACE.

The compilation and computation of the existing hypsometrical materials for India and High Asia being now terminated, we are in a position to indicate by a few figures the data upon which our knowledge in this branch of science is based, up to the present month of November, 1861. This enumeration may be considered at the same time as a general outline of the labours hitherto completed in hypsometry by our predecessors and ourselves.

The present volume contains, in all, the heights of 3,495 points, of which 1,615 belong to India, and 1,880 to High Asia. The area over which they are distributed extends from the southern parts of Ceylon to the environs of Káshgar in Turkistán (from 6° to 39° Lat. N.), and from the eastern boundaries of Assám to Sindh (from 97° to 70½° Long. E. Gr.).

Of the 3,495 points mentioned above, there are 1,113 for which we had no other determination but our own; of these new data 378 belong to India and 735 to High Asia. Besides these, we had occasion to add 144 points, some of which were determined anew; others are points for which differential values only had been formerly given, and which we had now the opportunity of connecting with the level of the sea.

With reference to the transcription adopted, a detailed explanation was presented in Vol. I., pp. 66—70; the table of the alphabet used is also given at the beginning of this volume. For the transcription of the Tibetan names, we are greatly indebted to our brother EMIL, who for some time past has been occupied with the preparation of a work, in which he will separately publish a selection from our Tibetan materials.

We begin this Volume, in Part I., with the theoretical considerations on the method of observation and calculation; two diagrams are also added, showing the variation of the barometrical heights in the daily and yearly period. As practical results of this part, we may mention the remarks on hypsometrical instruments in general, and especially our careful comparisons of barometers and of boiling-point thermometers, which were constructed with the greatest accuracy, and on which each degree of the Centigrade scale was divided into 50 parts. We had occasion to make such observations at a camp on the Íbi Gámin, still at a height of 19,323 feet. The barometrical and trigonometrical tables (pp. 71—90) may, we hope, be found acceptable, especially for scientific gentlemen in India.

The heights are contained in Parts II., III., and IV. It was a matter of serious consideration, how to arrange so large a number of heights. In accordance with the system detailed p. 93, the extensive districts of India, the Himálaya, and Tíbet, with the Karakorúm and Kuenlúen, have been kept separate, and each of these groups was subdivided into areas, the limits of which are laid down on a map included in the present volume. In this map the arrangement and succession of the heights is indicated by lines drawn across the several areas. To facilitate, however, the forming of any other combination which might be

required for special purposes, an "Alphabetical Register of Heights" has been given, pp. 506—25.

The materials collected in this volume were, at the same time, the basis for a "General Hypsometrical Tableau" (pp. 473—505), in which we have attempted to compare the principal features of India and High Asia with those of the Andes and the Alps.

In our Atlas of Panoramas, Views, and Maps, seven plates of "Panoramic Profiles" are engravings, having special reference to the hypsometry of High Asia. The profiles are parts of the large panoramas, the most important of which will subsequently be given as complete landscapes, coloured, with foreground and lateral scenery. The representation in profile of numerous crests of snowy peaks in immediate succession, and their combination with the hypsometrical details given in this volume, are as yet, we believe, a novelty of the kind, and, it is to be hoped, will prove useful in completing the orographical tableau of these regions.

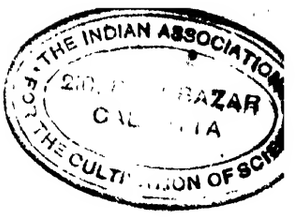
Following the principle adopted in our first volume, we here also present the details of our observations, as far as we consider them necessary. This is a plan which, though materially extending the typographical matter, is generally followed in similar works, as it renders possible a subsequent application of any, even minor improvement which may arise under the gradual progress of science. We have also taken care to give a list of the different observers, together with their important labours; to these must be added the recent operations of the Great Trigonometrical Survey, under Captain T. G. Montgomerie, in Bálti and Ladák, the results of which, we venture to hope, will shortly be published.

It affords us particular pleasure to repeat our acknowledgements for the valuable assistance, both official and private, that we have received in furtherance of the work contained in this volume: in

England, by LORD STANLEY, his successor SIR CHARLES WOOD, and the heads of the various departments of the India Office; in India, by General SIR ANDREW WAUGH and Colonel H. L. THUILLIER.

This volume was on the point of being published, when LORD WILLIAM HAY communicated to us the important news, that he had succeeded in his endeavours to recover Adolphe's manuscripts relating to his last and fatal journey to Turkistán. An account of their discovery by LORD HAY, to whom we have repeatedly had occasion to allude for his kind services in connection with our publications, is contained at the end of this volume. It is preceded by a report, in which the testimony of the several native witnesses examined in reference to the lamentable fate of our brother, has been carefully sifted by MR. THORNTON, in conjunction with COLONEL LAUGHTON and MESSRS. SCRIVEN and SMITH, two gentlemen of the Indian medical service.

The topographical portion of Adolphe's manuscript, which reached us January 10, 1862, will be embodied in our third volume.



CONTENTS.

PART I.

METHOD OF OBSERVATION AND CALCULATION.

I. Enumeration of the Materials of Observations — Page

Comparison and combination of the heights obtained — 3

Abbreviations used for the observers, books, and maps — 4

a. India and Himálaya in general — 5

b. India — 5

c. Himálaya and Tibet — 8

II. Barometric and Thermo-Barometric Instruments.

i. Barometers — 11

a. List of the instruments — 11

b. Construction — 12

c. Mode of packing — 13

d. Determination of the corrections — 14

e General table of the corrections of the barometers — 21

ii Thermo-barometers, or boiling-point thermometers — 22

a. Description — 22

b. List of the instruments — 24

c. Determination of the corrections by comparison with barometers — 26

d. Fundamental determination of the corrections — 32

iii. Aneroids — 35

iv. Thermometers — 37

III. Corresponding Meteorological Stations.

A. Geographical co-ordinates of the corresponding stations — 40

B. Instruments and hours of observation at the corresponding stations — 40

C. Secondary corresponding stations — 44

D. Selection of the corresponding stations — 45

II.

IV. Calculation of Barometric Heights. Page.

i. Formulæ employed 47
ii. Corrections for periodic changes of the elements 48
1. General considerations 48
2. Practical application to corrections 50
3. Materials for the yearly period. 51
4. Materials for the daily period 55
5. General table of corrections for the relative height 61
iii. Examples 62
1. Amarkántak in Málva 62
2. Mustágh pass in Bálti 63

V. Trigonometric Measurement of Heights and Distances.

i. Instruments 65
ii. Method of operation 66
iii. Designation of the objects measured 66
iv. Values and formulæ employed 67
v. Example 69

VI. Tables used in the Calculations.

i. Barometric tables 71
1. Sum of the temperatures of the air:
a. Fahrenheit 71
b. Centigrade 74
2. Correction for latitude 76
3. Correction for gravity 76
4. Increase of the relative height, depending on humidity 77
ii. Barometric pressures corresponding to temperatures of boiling water 78
a. Fahrenheit 78
b. Centigrade 83
iii. Trigonometric tables for the Himálaya and Tibet 88
a. Logarithms for computing the contained arc 88
b. Tables for converting the distances obtained in differences of latitudes and longitudes 88
c. Magnitude of the given azimuth 90

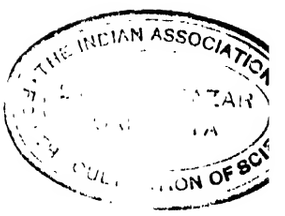
PART II.

HEIGHTS DETERMINED IN INDIA.

List of the Areas adopted 93

Area I. Heights in Assám, and the Delta of the Ganges and Brahmapútra 95
„ Heights in the Nága, Khássia, and Gárro hills 107
„ Heights in the Irawadi valley 113

		Page.
Area II.	Heights in Hindostán, Bándelkhánd, Bahár, and Bengál	114
„ III.	Heights in the Pănjáb, Sindh, and Gujrát	145
„ IV.	Heights in Central India	161
„ V.	Heights in the Dékhan and Maissúr	202
„ VI.	Heights in the Karnátik and Nílgiris	233
„ „	Heights in Ceylon	249
Appendix to Part II.		254



PART III.

HEIGHTS DETERMINED IN THE HIMÁLAYA.

	Panoramas and profiles in reference to hypsometry	261
	Characteristics of the Himálaya compared with the Alps	262
	Employment of scales in drawing the panoramas	263
	Panoramic profiles	264
	Diagrams added to the panoramic profiles	265
	Designation of peaks	265
Area VII.	Heights in the Himálaya of Bhután, Sikkim, and Nepál	267
„ VIII.	Heights in the Western Himálaya from Kámáon to Hazára	308
Appendix to Part III.		415

PART IV.

HEIGHTS DETERMINED IN TÍBET.

AND SECTIONS ACROSS THE

CHAINS OF THE KARAKORÚM AND KUENLUEN

Area IX.	Central chain of Western Tibet	420
„ X.	Principal snow-peaks of the western parts of the Karakorúm chain	424
„ XI	Transversal sections across Tibet, partially continued across the Kuenlúen	430
	a. Níti—Gártok	430
	b. Vángtu—Pangkóng	435
	c Kárdong—Karakorúm chain	440
	d. Pádum—Leh	445
	e. Múlbe—Kiúk Kiól—Elchi	452
	f. Dras—Shígar—Yárkand	457

PART V.

I. General Hypsometrical Tableau of India and High Asia. Page.

A. The different varieties of habitation 474

1. Towns, villages, and pasture grounds 474

2. Extreme heights visited by man, and effect of height 481

B. Geographical configurations 486

1. Plateaux and lakes 486

2. Passes 489

3. Peaks 493

C. Physical phenomena 496

1. Snow-fall, snow-line, and glaciers 496

2. Limits of vegetation and animal life 500

II. Alphabetical Register of the Heights determined 506

III. Additional Reports on the Last Journeys and Death of our Brother Adolphe 526

Index 547

PLATES CONTAINED IN VOL II.

Page.

Plate I. Variation of the barometric heights in the yearly period, to face 51

„ II. Variation of the barometric heights in the daily period, to face 56

„ III. Sketch map showing the areas adopted, to face 93

PART OF THE ATLAS IN SPECIAL REFERENCE TO VOL. II.

Seven Plates of Panoramic Profiles of the Snowy Ranges of High Asia.

Plate I. The Himálaya of Bhután, Síkkim, and Nepál.

„ II. The Himálaya of Kamáon and Garhwál.

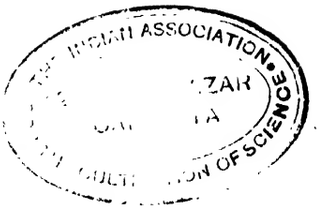
„ III. The western chains of the Himálaya from Símla to Kashmír.

„ IV. The northern slopes of the Himálaya, and the Trans-Sátlej range in Central Tibet.

„ V. The ranges of Western Tíbet, between the Himálaya and Karakorúm.

„ VI. Parts of the central chain in Tíbet, from Pangkóng to Ladák.

„ VII. The Karakorúm, with the plateaux in Turkistán and Kuenlúen.



ERRATA

Page 9 line 21 and 25, *for* Macardieu *read* Marcadieu.
„ 32 „ 19, *for* Loaka *read* Loáka.
„ 39 „ 1, *for* II. read III.
„ 52 „ 10, *for* 1854 *read* 1850.
„ 67 „ 31, *after* 21° 21′ 16″ 6 *add* "or about 1,469 miles".
„ 69 „ 25, *for* 3 9933480 *read* 7 9933480.
„ 113 „ 3, *for* Herm., A. O. *read* Schl., A. O.
„ 132 „ 10, *after* 310 feet *add* "Schl., Ad."
„ 149 „ 3 and 12, *for* Kussialgárh *read* Khōsh-hal-garh
„ 168 „ 23, *after* 81° 11′ 3″ *add* "in Bándelkhánd."
„ 188 „ 8, *after* 1,963 ft. *add* "Schl., Ad."
„ 214 „ 16, *for* El. *read* Schl., El.
„ 227 „ 1 *after* 1,115 ft. *add* "Schl., Ad", line 23, *after* 2,312 ft. *add* "Schl., Rob."
„ 229 „ 27, *after* 325 ft. *add* "Schl., Ad."
„ 233 „ 2, *for* Karnatik *read* Karnátik; line 11, *for* Píduru *read* Péduru.
„ 237 „ 15, *for* Nafarampalli *read* Natharampálli.

Page 253 line 1, *after* Adams peak *add* "Samanála".
„ 261 „ 17, *for* Nilgíris *read* Nílgiris.
„ 266 „ 7, *for* 199 to 203 *read* 202·6
„ 285 „ 3 and 6, *for* Pemíongchi *read* Pemióngchi.
„ 287 „ 14, *for* 35° 41′; Long. E. Gr. 77° 48′ *read* 35° 28′; Long. E. Gr. 77° 10′.
„ 289 „ 28, *for* Chánda *read* Chándu.
„ 292 „ 29, *for* 1,956 *read* 11,956.
„ 304 „ 24, *for* Neplá *read* Nepál.
„ 305 „ 17 et seq., *for* Narayúni *read* Naráyani.
„ 308 „ 8, *after* 11. Marri *add* "12. Kánáur".
„ 319 „ 12, *after* 11.138 ft. *add* "Schl., Ad."
„ 322 „ 3, *for* Deo *read* Déo.
„ 370 „ 4, *for* Baj Ghát *read* Raj Ghat.
„ 403 „ 6, *for* Kaj Nág *read* Kaj Nag.
„ 424 „ 4, *for* Changchénmo *read* Changchénmo.
„ 431 „ 22, *for* Schl., Ad. *read* Strach.
„ 436 „ 8, *add* "Subsequently, Dr. J. G. Gerard reached a height of 20,400 ft."

ALPHABET USED FOR TRANSCRIPTION.

a (ā ȧ a̱ a); ä; b (bh); ch (chh); d (dh); e (ē e ẽ); f; g (gh); h; i (ī i); j (jh); k (kh). kh; l (lh) m; n; o (ō õ), ö; p (ph); r (rh); s; sh; t (th); u (ū ũ), ü; v; y; z.

RULES OF PRONUNCIATION.

The system of the transcription adopted is fully explained in Vol. I. pp. 66—70.

Vowels.

1. a, e, i, o, u, as in German and Italian.
2. ä, ö, ü, as in German.
3. Diphthongs give the sound of the two component vowels combined. Diæresis is marked by the accent falling on the second of the two vowels.
4. - above the vowel makes the vowel long.

   In general we considered it unnecessary to add this sign when the accent coincided with it, and the omission would not influence the correctness of the pronunciation.

   Short vowels are not separately distinguished.
5. ` above a and e (a, e) is a sign of imperfect phonetic formation, similar to the open *u* in *but*, and *e* in *herd*.
6. - below a indicates the deep sound, like *a* in *wall*.
7. ~ above a and o indicates a nasal sound, like *a* and *o* in the French words *gant* and *son*: also ẽ, ĩ, and ũ had to be introduced for marking the nasal sound of e, i, and u; in the nasal diphthongs aũ and aĩ, we make the sign over one only, though both sounds have the nasal sound.

Consonants.

1. b, d, f, g, h, k, l, m, n, p, r, s, t, are pronounced as in German and English [the variations occurring in the pronunciation of g, and h (in English) excepted].
2. h, after a consonant is an audible aspiration, except in ch, sh, and kh.
3. ch, as in English *(church)*.
4. sh, as in English *(shade)*.
5. kh, as *ch* in German *(loch)*.
6. j, as in English *(just)*.
7. v, as the *w* in German *(Wasser)*, being different from *v* in *very*, and *w* in *water*.
8. y, as *y* in the English word *yes*, or *j* in the German *ja*.
9. z, soft, as in English.

Accents.

' marks the syllable on which the accent falls, whether the syllable be long or short

Alphabetical Registers.

In our alphabetical registers the letters follow the order of the alphabet, irrespective of the signs attached to them.

GENERAL REMARKS.

The measurements of heights and distances are given in English feet, and the miles also are English.

All the heights given are absolute, referring to the level of the sea.

The readings of the barometer are given in English inches, of the thermometer in Fahrenheit.

All the latitudes are North, the longitudes are referred to the meridian of Greenwich. Adopted longitude of the Madras Observatory: 80° 13′ 56″ East Green.

Abbreviations and signs used for the observers see pp. 4—10.

PART I.

METHOD OF OBSERVATION AND CALCULATION.

I. ENUMERATION OF THE MATERIALS OF OBSERVATIONS.

II. BAROMETRIC AND THERMO-BAROMETRIC INSTRUMENTS.

III. CORRESPONDING METEOROLOGICAL STATIONS.

IV. CALCULATION OF BAROMETRIC HEIGHTS.

V. TRIGONOMETRIC MEASUREMENT OF HEIGHTS AND DISTANCES.

VI. TABLES USED IN THE CALCULATIONS.

I. ENUMERATION OF THE MATERIALS OF OBSERVATIONS.

Comparison and combination of the heights obtained. — Abbreviations used for the observers, books, and maps *A.* India and Himálaya in general; *B.* India; *C.* Himálaya and Tibet

COMPARISON AND COMBINATION OF THE HEIGHTS OBTAINED.

It being our aim to present a general tableau, as complete and correct as possible, of the hypsometric conditions of India and High Asia, we have combined with our own observations[1] a carefully detailed compilation of all the existing materials which we were able to collect, though it has proved a much more laborious task than we had anticipated, on account of the materials being scattered throughout a great number of books, pamphlets, and maps, and even manuscripts, and provincial publications of India. We have, besides, embodied the results of previous observers, not only for such places and localities which we were ourselves unable to visit, but also for those actually determined by ourselves. In the latter case former determinations, when based on detailed measurements, offered at the same time a valuable control for our own observations, and could, moreover, be included in the means. The instances, however, where means could be taken were much less numerous than we had expected; they were, indeed, comparatively speaking, very rare, since for a critical examination it is of importance to know the original observer, and the nature of the method upon which his result is based, and these two points it was often very difficult, and sometimes impossible, to elucidate. We were also prevented from taking means at a vast number of places, because the spot of observation, or the "locality", as we propose to call it,

[1] Our *barometric* observations are contained in Nos. 13, 14, 15, and 16 of the manuscript volumes quoted in Vol. I., p. 8; the *trigonometric* determinations in Nos. 7 and 8.

had not been properly defined and described by the observer. The omission of the precise locality is often the occasion of much confusion and uncertainty, and many apparent discrepancies between the results of different observers at the *same place* would disappear, if the *locality* were known to which each observer's determination refers. In hilly, rocky, or much broken ground, it is possible for differences of several hundred feet to exist between "various localities" within a very short distance from each other.

In the selection of the locality, care should always be taken to fix upon a well defined object, such as the level of a river, tank, or spring, the floor of a house, or compound, the top of a hill, &c., in fact, any spot which may be easily recognised by a subsequent observer.[1] As, however, it is often impossible to put up the instruments in conspicuous positions, a local correction should then be applied, the amount of which can in general be easily ascertained by direct measurement, or in extreme cases, by minor triangulation.

In deducing the final results for places which had been determined by various observers, we have omitted the earlier observations, when evidently wrong, and, other things being equal, give the preference to trigonometric, over barometric, determinations.

Places near the sea shore, or very little above the sea level, and those situated in the deltas of rivers, have been in general omitted.

ABBREVIATIONS USED FOR THE OBSERVERS, BOOKS, AND MAPS.[2]

The observations made by ourselves during our travels are marked so as to distinguish the observer, or our establishments, when on a separate route.

Schl., Herm.	Hermann,	Schl., Hark.	Hărkíshen,
Schl., Ad.	Adolphe,	Schl., El.	Eleazar,
Schl., Rob.	Robert,	Schl., Man.	Máni.
Schl., Lt. A.	Lieutenant Adams,	About our establishment, see Vol. I., pp. 36—38.	

[1] When the nature of the object measured leaves no doubt as to the locality, we have omitted it altogether. Thus, when the height of a peak, or pass, is given, the summit is the locality signified; when we give as locality d.k bángalo, the floor of the bángalo must be always understood.

[2] The authorities here quoted are arranged, not *alphabetically*, but *geographically*, according to the three principal divisions adopted by us.

A. INDIA AND HIMÁLAYA IN GENERAL.

For the materials collected, we use the following signs:

G.T.S. The heights of a large number of places, peaks, &c. have been determined by the Great Trigonometrical Survey of India, in connection with its other operations. The values obtained, however, have not yet been published in a separate form, but are to be found dispersed throughout the Revenue maps, the maps of the Indian Atlas, and various provincial publications. Besides those already published, we have been allowed, through the truly scientific zeal of Colonel Waugh and Major Thuillier, to extract a great number of original records. The locality for the places in India Proper, called "Tower Station," seems generally to be the top of the station mark, viz. on an average about 30 or 40 feet higher than the surrounding plain. In all cases where it was known, we subtracted the height of the tower and gave as locality: T.S. base = base of the tower station.

Schl., A.O. For the valley of the Brahmapútra, and the adjoining countries to the north and to the south of it, some heights, which had been determined by Assamese officers, were communicated to Hermann from Colonel Jenkin's Central Office at Gohátti.

Thorn. Thornton's well known Gazetteer of India, London, 1857, gives some heights nowhere else found by us.

Hook. Hooker's careful observations are contained in his "Himálayan Journals", London, 1854, Vol. II., pp. 465—473.

A. J. and name. Some isolated observations, made by various observers, and contained in the volumes of the Journal of the Asiatic Society of Bengál, or in the Asiatic Researches, are quoted as above, with the respective name of the observer.

I. A. and No. of sheet signifies: heights contained in the sheets of the Indian Atlas, without any further particulars being communicated.

P. C. and name. Private communications, received from various officers and gentlemen during our travels, will be found quoted under this head, together with the name of the senders.

B. INDIA.

Oldh. The heights in the Khássia Hills ascertained by Professor Thomas Oldham are given in his report: "On the Geological Structure of part of the Khási Hills,"

Calcutta, 1854. This report is reprinted in the "Memoirs of the Geological Survey of India," Vol. I., Calcutta, 1859. Determinations of a few points made in the Khássia Hills, 1827, by Lieutenant Fisher (see "Gleanings in Science", 1830, Vol. II., p. 69), have been omitted.

Ev. William Evans, Esq., Deputy Chief Engineer of the East Indian Railway, kindly gave us, in May, 1855, a manuscript-map containing the levels from Howrah (Calcutta) to Ranigánj, a distance of 122 miles.

Turnb. We are indebted to George Turnbull, Esq., for a manuscript-map of the Rajmahál line of the East Indian Railway; this map, received in April, 1857, shows the levels of the line between Bárdván and the river Kurumnása. The levels of the East Indian Railway are all referred to the Howrah dock sill.

Ham. Sir Robert Hamilton communicated to the Asiatic Society the level of the different stations of the proposed railway between Súrat and Ágra (see Journal of the Asiatic Society of Bengál, 1856, p. 221).

Frankl. Capt. James Franklin adds to his memoir, "On the Geology of Bándelkhánd" (Vol. 18 of the Asiatic Researches), a table of barometrical heights, determined Nov. to February 1826-7. His point of reference and comparison was a G. T. S. station at Ságer, which he assumes as 2,195 feet above the level of the sea. But, after a careful examination, we find, that this G. T. S. station has only a height of 2,121 feet. Moreover, a comparison with our own observations shows Captain Franklin's determinations to be too high; we therefore have deducted from each of his observations 74 feet (2,195 — 2,121 = 74 feet), so that his heights will now be found nearer the truth.

Flem. Dr. A. Fleming, in his "Report on the Geological Structure of the Salt Range", gives a list of approximate heights for various places situated in or near the salt range. Some of his observations were made by a Fahrenheit thermometer divided into ½°, others by mountain barometers. The corresponding station was Calcutta, being more than 1,000 miles to the east. See Journal of the Asiatic Society of Bengál, Vol. XXII.

Walk. Lieutenant J. T. Walker, Bombay Engineers, gives a considerable number of heights, trigonometrically determined, and based upon the operations of the Great Trigonometrical Survey, in his maps of the "Military Survey of the Northern Trans-Indus Frontier", Calcutta, 1853. These maps, consisting of several sheets, are drawn

in the proportion of two English miles to the inch. We have applied to all heights on Walker's map a correction, the amount of which is indicated by himself. An account of Lieutenant Walker's Survey is published in the "Selections from the Public Correspondence of the Pánjáb Administration", Lahór, 1855, No. XXV. It is to be regretted that his elaborate account does not contain a list of the latitudes and longitudes determined.

Bomb. Cal. The Bombay Times Calendar for 1851 contains, in its third part, p. 6, a list of heights of various places situated in the Bombay Presidency. The source from which the heights are derived is not mentioned, but as some of them are also to be found on the respective sheets of the Indian Atlas, we believe them to have been determined trigonometrically. We have kept a separate mark for them.

Buist. In our manuscript journals we found some observations, copied by our late brother Adolphe from a source which is not specially named. These observations, based partly on barometer, partly on thermo-barometer readings, refer chiefly to Southern India, and were made, if we are not mistaken, by the late Dr. George Buist.

Syk. Some of the places determined by Colonel W. H. Sykes, in the Dékhan and Southern India, are given in the Proceedings of the Royal Society, 1850, p. 354.

A considerable number of heights are collected and graphically represented in the "Barometrical Sections of India", by Dr. Edward Balfour, Madras, 1853. In addition to these hypsometric observations, the book contains many interesting and valuable data on the populations, products, &c., of India Proper. The observers mentioned by Balfour are:

Wils. Lieutenant Colonel J. Wilson.

Cull. Major General Cullen (now Resident at Travankúr).

Mountf. Captain F. Mountford.

Bab. Mr. G. B. Babington.

Ger. Captain A. Gerard. Besides the heights given in Balfour, Gerard's "Account of Koonawur", in the Himálaya, edited by George Lloyd, London, 1841, contains a great many heights.

Scott. Various heights are also to be found in Major F. W. Scott's map of the Peninsula of India, accompanying the "Routes in the Peninsula of India and of the adjacent Territories", Madras, 1853. Neither the locality to which the heights refer,

nor the authority, is given. Many are evidently taken from Balfour's barometrical sections; the rest seem to be approximations.

Eastw. Eastwick's Handbook for India, 2 Vols., London, 1859, contains several heights which we could find nowhere else. Mr. Eastwick does not quote the source from which they are derived.

Godd. Levels executed along the Godáveri, by Lieutenant Goddard, are contained in the "Selections from the Records of the Madras Government", Madras, 1855, under the title, "Lieutenant Haig, Report on Navigation of the Godáveri".

Baik. is the abbreviation we use for Baikie's book, "The Nilgherries", 2nd edition, Calcutta, 1857. In the Appendix, p. 1, he gives a table of heights of mountains in the Nílgiris, without, however, mentioning the source from which they are derived. Some of the heights quoted seem to be approximations only. There are also various data, dispersed throughout the pages of the book, which have been collected by ourselves.

F. and S. Professor Schmarda's interesting book, "Reise um die Welt, 3 Vols., Braunschweig, 1861", contains (Vol. I., pp. 587—590) a list of heights determined by M. de Fridau and Professor Schmarda. The locality is given in a few cases only, nor does it appear which was the corresponding station.

Fras The map of the Central province of Ceylon, exhibiting the situation of Coffee Estates, by General Fraser, contains a number of heights, about which no further particulars are known to us.

Tenn. Heights are also found in Sir James E. Tennent's well known "Ceylon", 2 Vols., London, 1859, in Vol. I., p. 15.

C. HIMÁLAYA AND TÍBET.

Pemb Some heights in Bhután are contained in Captain R. B. Pemberton's "Report on Bhután", Calcutta, 1839.

Robins. Captain Robinson's heights in the environs of Kathmándu are calculated from observations taken by a native; the results are given in the Journal of the Asiatic Society of Bengál, 1837, Part II., p. 699.

Strach. The Strachey's (Capt. Henry, and Major Richard) have published a number of heights for Kámáon and Gnári Khórsum in "Physical Geography of Western Tíbet", London, 1854, and in the Journals of the Asiatic Society of Bengál, Vols. XVI. to XIX.

Russ. William Howard Russell, the well known correspondent of the *Times* during the Indian rebellion, gives some heights in his interesting book "My Diary in India" 2 Vols., London, 1860. The authority from which they are derived is not mentioned.

The Asiatic researches contain in Vols. 13 and 14 various heights, chiefly for the Himálaya of Kămáon and Gărhvál, trigonometrically determined by:

Herb. and Hodg. Captain J. D. Herbert, and Major J. A. Hodgson.

Webb. Captain Webb. To each of his heights we have added 72 feet for correction of the starting point from which they were derived. See Journal of the Asiatic Society, Vol. XVII., p. 532.

A considerable number of the points determined by Herbert, Hodgson, and Webb, have been recently revised by the G. T. S.

Mulh. Mr. J. Mulheran, first Assistant of the Great Trigonometrical Survey, presents, as Appendix to Mr. Barnes' "Report on the Settlement of Kángra", Lahór, 1855, a list of trigonometrical heights in Kángra and Kúlu.

Cunning. Several heights of places, peaks, &c., of the Western Himálaya and Ladák are given by Major A. Cunningham in his "Ladák", London, 1854.

Thoms. In Thomson's "Western Hímálaya and Tíbet", London, 1852, we find many heights quoted, some being those of the Gerards, Cunningham, and the Stracheys, the remainder being determined by Dr. Thomson himself.

Earlier observations made by Moorcroft and Trebeck,[1] Hügel,[2] Vigne, Jacquemont,[3] Macardieu,[4] Griffith,[5] and others, are in general omitted, as they have been for the greater part corrected by later observers. When any of them, however, are mentioned, we give to them the following abbreviations:

M. and T.	Moorcroft and Trebeck.	Jacq.	Victor Jacquemont.
Hug.	Baron Hügel.	Mac.	Macardieu.
Vig.	Vigne.	Griff.	Griffith.

[1] Travels in the Himálayan provinces of Hindostán and the Panjáb, from 1819—1825. Edited by H. H. Wilson, 2 Vols., London, 1841.

[2] Travels in Kashmír and the Panjáb. Translated from the German by Major T. B. Jervis. London, 1845.

[3] Voyage dans l'Inde. Journal. Paris, 1841.

[4] Selections from the public correspondence of the administration for the affairs of the Panjáb. Lahor, 1853 Vol. I, p. 539.

[5] Journals of Travels by the late N. Griffith, Esq., arranged by J. McClelland, Esq. Calcutta, 1847. Griffith's heights are also contained in Major Hough's expedition to Affghanistán. London, 1841.

The hypsometric results contained in the works of Mountstuart Elphinstone, Wood, Burnes, Lord, Lemessurier, and others, have also been omitted, as they refer to countries which we do not include in the hypsometry of India and High Asia.

Ab To heights which are evidently approximations only, the abbreviation "ab." about, is prefixed.

The following abbreviations are inserted between the name of the place and the latitude.

T. S. means Tower Station.

T. S. base, stands for the base of the tower (see p. 5).

H. S. inserted in a manner similar to the preceding T. S. — Hill Station.

To the hypsometric stations the latitude and longitude is generally added, or places in their immediate neighbourhood are referred to such determinations, so that the position of every locality can be considered as sufficiently defined.

These values are derived from various sources:

☩ Latitudes and longitudes of places determined by the Great Trigonometrical Survey, are distinguished by this mark.

⊢ This sign is attached to those places, for which we have ourselves determined the geographical co-ordinates.

The latitudes and longitudes for places not distinguished by a sign are most carefully taken from the best existing maps (for India, from the Indian Atlas, for Bhután, from Pemberton's own determinations, given in p. 208 of his Report on Bootan, Calcutta, 1839, and from Tassin's map, &c.).

All the longitudes in this volume have been referred by us to the Madras Observatory, for which we have adopted the value: 80° 13′ 56″ E. Gr.

The heights are given in English feet.

II. BAROMETRIC AND THERMO-BAROMETRIC INSTRUMENTS.

I. BAROMETERS: *a.* List. *b.* Construction. *c.* Mode of packing. *d.* Determination of the corrections. *e.* General Table of the corrections.

II. THERMO-BAROMETERS: *a.* Description. *b.* List. *c.* Determination of the corrections by comparison with barometers. *d.* Fundamental determination of the corrections.

III. ANEROIDS.

IV. THERMOMETERS.

I. BAROMETERS.

a. *List of the barometers.* During our different journeys we used in all sixteen barometers. When starting from Europe, 1854, we had with us one syphon and two cistern barometers from Berlin, and three cistern barometers from London.

In March, 1855, we received at Calcutta, through the kindness of Major Thuillier, three mountain barometers by Newman, which were used by our assistants for corresponding observations.

In the following year, five cistern barometers by Pistor of Berlin, which had been most carefully executed under the superintendence of our friend, the late Baron Humboldt, reached us in Calcutta, and lastly, before starting for his last fatal journey, Adolphe received two more small mountain barometers by Troughton, probably from his friends at Peshâur.

The following are the Nos. we use for the barometers in our observations, together with the makers' Nos. and signatures.

We mark with an asterisk those which may be considered as standard barometers, from their having a large diameter of tube and cistern, and from keeping their correction unaltered.

No. given by us.	Maker's Name and No.	No. given by us.	Maker's Name and No.	No. given by us.	Maker's Name and No.	No. given by us.	Maker's Name and No.
1	*Greiner 1	5	*Adie 5	9	*Pistor 961	13	Newman 2
2	*Pistor 1	6	*Adie 6	10	*Pistor 962	14	Newman 3
3	Oertling 1	7	*Pistor 959	11	*Pistor 963	15	Troughton 1
4	Adie 4	8	*Pistor 960	12	Newman 1	16	Troughton 2

Barometer 1, Greiner, was a syphon, 2 to 16 were cistern barometers. Nos. 1 to 11 had millimetre scales and centigrade thermometers attached; Nos. 12 to 16 had the scales divided into English inches with Fahrenheit thermometers.

The scales of Adie's barometers, Nos. 4, 5, and 6, had been engraved from a correct standard, but without taking into account that the metre must be reduced to 32° Fahrenheit as its standard temperature. A careful comparison of their scale division with a standard measurement has given the following results:

Scale reading: Millimetres.	Correction to be applied.	Scale reading corrected.	Scale reading: Millimetres.	Correction to be applied.	Scale reading corrected.
760 0	- 0 5	759 5	490 0	- 0 2	489 8
700 0	0 4	699·6	380 0	— 0·1	379·9
600 0	— 0 3	599·7	300·0	0 0	300 0

b. *Construction of the barometers.* With reference to the general construction of the barometers, we add the following remarks:

Barom. 1, Greiner, had two microscopes with their magnifying glasses crossed with wire as in theodolites. By aid of these microscopes the relative position of the two arms of the syphon could be ascertained with the utmost nicety. When the instrument was inverted for transport, the shorter arm of the syphon was protected against the possible introduction of air, by the insertion in the orifice of a cork, through which a capillary tube was passed, so as to allow the mass of mercury to expand without resistance.

Each of Adie's barometers had a circular spirit level in the upper end, by which the vertical position of the instrument could be easily ascertained. Greiner's syphon barometer necessarily had its point of suspension eccentrical, for, at different heights,

the relative position of the point of gravity was altered by the distribution of the mass of mercury in both arms of the syphon; though from the general size and weight of the wooden frame to which the syphon was attached, the deviation was too trifling to be appreciable. For the fundamental determination of errors, however, where the greatest possible accuracy must be sought for, or at very great heights, the exact vertical position of the barometer was always ascertained by means of a plummet.

The glass cisterns of Pistor's barometers were surrounded by metal cases with large apertures to admit the light. Of Adie's cisterns but a small part could be seen, being, as they were, almost entirely covered by the metal; nevertheless, they received light enough for the adjusting of the zero point, which was effected by means of broad edges. These *edges* we do not consider to be so serviceable as the large, but thin, *horn points* of Pistor's barometers, which never altered their form, always kept remarkably clean, and allowed of the greatest nicety in the adjustment.

The barometers 12 to 16 had narrow tubes, and no point for adjusting the zero in the cistern. We occasionally used them for a series of observations, but on each occasion had to compare them with standards, and apply the corrections thus directly ascertained to the readings. From the nature of the instrument, the correction varies with the height of the column, but it might also be deduced from the relative dimensions of tube and cistern, always provided that the primary error of the instrument remains constant. It is, however, impossible to alter the scale in perfect coincidence with the rise or fall of the level in the small cistern; and we were consequently obliged to use barometers of this construction as differential instruments only, the absolute values being as often as possible ascertained by direct comparison. The thermometers attached to the barometers we took care to have made not too sensitive; an over-susceptibility being calculated to interfere with their more immediate use, which is to indicate the temperature of the mercury in the barometer, without, at the same time, being influenced by external causes of a trifling character.

c. *Mode of packing.* The safety of the instruments was in great measure due to our mode of packing them. Indeed, in three instances only a glass tube was broken.

Every barometer had a strong wooden case for itself, and rested, in every direction,

on soft elastic springs. Two short springs were placed vertically above and below the case, and four larger ones pressed equally upon the four sides. The instruments were generally carried by kúlis, and, when we travelled by dāk, were placed upright, but inverted, in the carriage. We found it possible, though not without difficulty, altogether to avoid packing them upon horses, elephants, or camels.

When borne on a man's back, the wooden case was packed in a bag of strong cotton cloth with the necessary straps attached, and on the end to be kept uppermost was fastened a rough piece of wood—a mechanical contrivance which effectually served to prevent the bearers from carrying the instrument in a wrong position, if only from the very inconvenience of doing so.

d. *Determination of the corrections of the barometers.* During the whole of our journeys, the barometers were repeatedly subjected to careful comparisons. The general table of comparisons (p. 21) will show that we were fortunate in keeping the corrections pretty uniform, and that we always had in use one or more instruments in capital working order, though it is necessary to add that, on some occasions, which will be mentioned hereafter, several of them became useless by the sudden introduction of air into the tube. In the examination of the barometers, if several are found constantly to preserve the same difference, a very valuable criterion of their correctness is afforded, as in this case there is the greatest probability of none of them having undergone any material alteration; for, if air should have introduced itself into one or more of the tubes, the indications of the mercury would decidedly be altered in an *unequal* degree.

1. Hermann, Adolphe, Robert. Bombay to Calcutta, 1854-5.

We had with us barometers 1, 2, 3, 4, 5. Barometer 6 had been broken on the overland journey in the desert between Kairo and Suez.

We chiefly used barometers 1, 2, and 4; barometer 5, Adie, leaked so much, that we were obliged to empty it at Púna, January 4, 1855.

Barometer 3, Oertling, which, already at Berlin and at Kew, was found to contain some air, had a very variable correction, and was given up altogether from February 15, 1855.

Barometers	1, Greiner.	2, Pistor.	3, Oertling.	4, Adie.	5, Adie.
			1854, Dec. 10, to 1855, Jan. 3.		
Corrections (millim.)	+ 0·1	0·1	+ 0·7	+ 0·6	+ 0·3
			1855, Jan. 4 to Jan. 5.		
			+ 0·9		
			1855, Jan. 6 to Febr. 14.		
			+ 1·5		

Barom. 1, Greiner. Its correction is based: (*a*) on comparisons made at Berlin with Professor Dove's standard, 1854, June 13, corr. 0·0; (*b*) on 20 comparisons with the Kew[1] standard Newman No. 34, 1854, Sept., corr. + 0·1 millimetre

This instrument was one of the best we had: the mercury always gave a clear metallic sound, on touching the glass: the later comparisons will equally show, that its correction remained the same until it was broken near the Sásser pass, 1856, August 3.

Barom. 2, Pistor. The correction (*a*) at Berlin, with Dove's standard, was − 0·1 millimetre; (*b*) at Bombay, 1854, November 25, with the observatory's standard No. 38 (which stands 0·014 Eng. inch too high) — 0·1 millimetre.

Barom. 3, Oertling. The corrections were (*a*) at Kew, 1854, September, + 0·1 millimetre: (*b*) at Bombay, 1854, December 28 and 29, + 0·7 millimetre: (*c*) during the journey, the corrections, given above for the different periods, were ascertained by comparisons with barometer 2, Pistor.

Barom. 4, Adie. Its correction at Kew was + 0·4 millimetre, but we found by comparison with barometer 1, Greiner, after our arrival at Bombay, that the correction had become + 0·6 millimetre.

Barom. 5, Adie. We adopted the Kew correction, + 0·3 millimetre. The instrument was emptied, as mentioned above, at Púna, and filled again, March 1855, at Calcutta.

The following comparisons of the barometers, made during the journey from Bombay to Madras, will show that, after the application of the corrections, the readings of the barometers perfectly agree. When making comparisons of the barometers, we considered it advisable not to take the reading until after they had been in a fixed position for some little time, and also took care to place the instruments close

[1] Before we left England, our meteorological instruments were all sent to the Kew Observatory (under the charge of General Sabine) and their errors carefully ascertained by the late Mr. Welsh, who fully sustained the well deserved reputation of that establishment for accuracy and energetic attention. The comparisons made by us during our travels, are for the most part contained in Vol. 5. of our manuscript volumes.

together, in order to secure for them an equal temperature, so that reduction to zero became unnecessary.[1]

	1855, Jan. 4, Púna.		1855, Jan. 6, Sássur.		1855, Febr. 3, Koghíra.	
Barom.	3, Oertling.	5, Adie [2]	3, Oertling.	2, Pistor.	1, Greiner.	4, Adie.[2]
Millim.	717·2	717·8	696 9	698·5	714 1	713·6
Corr.	+ 0·9	+ 0·3	+ 1·5	− 0·1	+ 0 1	+ 0 6
	718 1	718·1	698·4	698 4	711 2	714·2

2. Hermann: Calcutta, 1855, April, to Símla, 1856, May, including Síkkim and Assám.

Barom. 1, Greiner. During the present journey, I used this barometer almost exclusively, as it always remained in good order. Upon my return, I was fortunate enough to be able to compare my instrument with one belonging to the late Dr. Tritton of Ambála, a standard barometer by Newman with very large tube (diameter 0·55 inch) and cistern, and in perfect condition.

Tritton's Newman.	Barom. 1, Greiner.
28·796 inches = 731·40 millim.	731·29 millim. = 28·791 inches.

Resulting correction for barometer 1, Greiner, + 0·11 millimetre.

Barom. 5, Adie. This barometer, after being re-filled in the Surveyor General's Office at Calcutta, kept the same correction as it had in London, viz. = + 0·3 millimetre.

We found:

1855, March 23, at Calcutta.		1855, April 16, Pankabári, in the Síkkim Tarái.	
Troughton's Standard in the Surveyor General's Office .	760 0 millim.	Barom. 1, Greiner . . .	711·6 millim.
Barom. 5, Adie	759 6 „	Corr.	+ 0·1 „
Corr. for barom. 5, Adie . .	+ 0 4 „	Barom. 1, corrected . .	711·7 „
		Barom. 5, Adie	711·5 „
		Corr. for barom. 5 . .	+ 0 2 „

Mean of the correction for barom. 5, Adie = + 0·3 millimetre.

Barom. 14, Newman, was only occasionally used. See general remarks, p. 13.

[1] In the comparisons with the thermo-barometers, as well as in the tables of barometric measurements, the readings of the barometers are of course reduced to 32° Fahr. and corrected for instrumental errors, capillarity, &c. The tables we used for the reduction of the barometrical column to 32° Fahr. are referred to a dilatation in volume of 0 000180180 for 1° C., as ascertained by Dulong and Petit This is also the value adopted by the Committee of Physics and Meteorology of the Royal Society. Regnault (mém. de l'institut XXI., p. 318) found 0·00018153; Militzer (Pogg. Annal. LXXX., p. 84) 0 00017405.

[2] The correction of *scale* for these instruments is already applied. See p. 12.

3. ADOLPHE AND ROBERT: 1855, MARCH, TO 1856, MAY. NAINITÁL TO MASSÚRI, AND SOUTHERN INDIA TO SÍMLA.

We had:

	Barom. 2, Pistor.	4, Adie.	6, Adie.
Corr. (millim.)	— 0·1	+ 0·6	+ 1·0

Barom. 2, Pistor. This remained in perfect order and kept its correction — 0·1 till 1855, Sept. 30, when an air bubble made its appearance, and it was no longer used.

Barom. 4, Adie. This barometer remained unaltered till 1855, June 8, when it got out of order. It was repaired at Déra, but the correction was found to be unchanged. A few months later it began to leak so much, that I (Robert) was obliged to empty it, 1856, January 10, when I continued my observations, as far as Símla, with thermo-borometer 8, Geissler. The instrument was then repaired again at Déra, and used from April, 1856, till June 18, 1856.

Barom. 6, Adie. This had been filled again March, 1855, at Calcutta, where, from comparisons made with barom. 1, Greiner, by Hermann, before sending it to us, the correction was found to be + 1·0 millim. The list of the comparisons here communicated shows that its correction remained unaltered nearly till April, 1856. On the way from Bangalúr to Madras, March 18 to 21, 1856, Adolphe was obliged to take it with him into the dāk carriage, where, though stowed away with the utmost care, it became disordered from the effects of the violent shaking. It was filled a second time at Calcutta, April, 1856, and kept the same correction,[1] as will be seen from the comparisons made after leaving Símla.

DETAIL OF COMPARISONS.

1855, March 23, Calcutta.			1855, April 12, Fatigárh.		
Barom.	4, Adie.	6, Adie.	Barom.	2, Pistor.	6, Adie
Millim.	759·3	759 0	Millim.	749 5	748 4
Corr.	+ 0 6	+ 1·0	Corr.	— 0 1	+ 1 0
	759 9	760 0		749·4	749 4

[1] In this instance, as well as in many others, we repeatedly found that barometers, after being boiled out a second time and properly re-filled, showed the same correction as before. This, indeed, is no more than might have been expected, for, when the scale, zero point, and cistern remain unaltered, and the same glass tube is filled with pure, properly boiled mercury (of the same specific gravity), there is every probability of the correction remaining unchanged.

1855, April 18 to 26, Nainitál.

	Barom. 2, Pistor.	4, Adie.[1]	6, Adie.[2]
Millim.	603·1	602·4	602 0
Corr.	— 0·1	+ 0·6	+ 1·0
	603 0	603 0	603·0

1855, June 1 to 15, Mílum in Johár.

Barom. 2, Pistor.	4, Adie.	
Millim. 507 5	506·8	18 comparisons.
Corr. — 0·1	+ 0 6	
507 4	507 4	

Barom. 2, Pistor.	4, Adie.	
Millim. 507·0	506·3	22 comparisons.
Corr. — 0·1	+ 0·6	
506 9	506·9	

Barom. 2, Pistor.	6, Adie.	
Millim. 506·1	505·0	16 comparisons.
Corr. — 0 1	+ 1·0	
506 0	506 0	

1855, July 6, △Tálla Shálong.

Barom. 2, Pistor.	6, Adie.
Millim. 477·8	476·8
Corr. — 0 1	+ 1·0
477·7	477·8

1855, July 7, Úta Dhúra pass.

Barom. 2, Pistor.	6, Adie.
Millim. 401·1	399·9
Corr. — 0 1	+ 1 0
401 0	400 9

1855, July 8, △Loáka.

Barom. 2, Pistor.	6, Adie.
Millim. 427 4	426 3
Corr. — 0 1	+ 1·0
427 3	427 3

1855, July 12, Kiungar pass.

Barom. 2, Pistor.	6, Adie.
Millim. 405 0	403 9
Corr. — 0·1	+ 1·0
404·9	404 9

1855, November 12, Déra, in the Field Office of the Surveyor General.

Barom. Newman No. 84.		4, Adie.	6, Adie.	
27·693 inches. .	=703·4 millim.	703·8	703 4	Mean of 2 comparisons.
Resulting corr. for Newman 84.	+ 1·0	+ 0·6	+ 1 0	
		704 4	704 4	

1855, December 14 to 18, Ságer.

Barom. 4, Adie.	6, Adie.	
Millim. 720·2	719·8	Mean of 20 comparisons.
Corr. + 0 6	+ 1 0	
720 8	720 8	

Our guide Eleazar had, from Calcutta up to Nainitál, barometer, 13, Newman, which got out of order, 1855, May. The correction of this instrument for low heights, determined in the Surveyor General's Office by comparison with the Calcutta standard, was — + 0·021 inch.

[1] Mean of 28 comparisons with barom. 2, Pistor.

[2] Mean of 22 comparisons with barom. 2, Pistor.

4. HERMANN, ADOLPHE, AND ROBERT. 1856, MAY TO THE END OF THE JOURNEYS.

CORRECTIONS OF THE BAROMETERS USED.

Barometers:	1, Greiner.	4, Adie.	5, Adie.	6, Adie.	7, Pistor.
Corr. (millim.)	+ 0·1	+ 0 9	+ 1 6	+ 1·3	+ 1 3

Barometers:	8, Pistor.	9, Pistor.	10 Pistor.	11, Pistor.
Corr. (millim.)	+ 0 6	+ 0 7	+ 0 6	+ 0 5

Barom. 1, Greiner. This was Hermann's barometer, and kept in perfect order from 1854, September, till 1856, August 3. We were obliged, on account of the great height, exceeding 20,000 feet on the Sásser peak, to take a considerable quantity of mercury out of the shorter branch of the syphon. Upon inverting the barometer, a large air bubble introduced itself, and from this time the instrument was useless.

Barom. 4, Adie. This instrument, after being out of order from 1856, January 10, was sent to the Surveyor General's Field Office at Déra. A new glass tube being put in, and the zero-point altered by replacing the original edge with another, its correction no longer remained the same as before. In Símla, where it was generally kept stationary, it continued in perfect order, but when we were travelling it began to leak, and had to be given up June 18, 1856.

Barom. 5, Adie. This was filled again in Calcutta after my (Hermann's) return from Assám. A new zero point being made, the correction changed to + 1·6 millim.

Barom. 6, Adie. Adolphe's chief barometer, which he must have had with him at Káshgar, up to the very last period of his journeys. Though the correction was a large one, it always remained without alteration.

Barom. 7, Pistor. Chiefly used by Robert as far as Ceylon, where it was broken on the 29th of April, 1857, through the carelessness of a kúli.

Barom. 8, Pistor. Got out of order 1857, February 2, and was then used no longer.

Barom. 9, Pistor. *Brought back to Europe without accident,* and found to be in good condition when last compared with the standard of the Berlin Observatory. Hermann used it as his standard barometer from 1856, December.

Barom. 10, Pistor. This instrument was occasionally used by Hermann for com-

parison, and was generally kept as a spare instrument in case of accident to the other barometers.

Barom. 11, Pistor. Used by Adolphe from Pesháur to Sultánpur; it was then handed over to Härkíshen, when he separated from Adolphe, 1857, May 31. Härkíshen took observations with this instrument till Dec., 1857; we have now received it in a dilapidated condition.

DETAIL OF COMPARISONS.

1856, April 26 and 27, Simla.

Barometers:	1, Greiner.	4, Adie.	6, Adie.	7, Pistor.
Millim.	591·3	590 5	590·1	590·1
Corr.	+ 0·1	+ 0 9	+ 1·3	+ 1·3
	591·4	591 4	591·4	591 4

	8, Pistor.	9, Pistor.	10, Pistor.	11, Pistor.
Millim.	590·7	590 6	590·8	590 9
Corr.	+ 0·6	+ 0 7	+ 0·6	+ 0 5
	591·3	591·3	591 4	591 4

1856, June 19, Bára Lácha pass.

Barometers:	5, Adie.	8, Pistor.
Millim.	419·9	420·9
Corr.	+ 1·6	+ 0·6
	421 5	421·5

1856, June 26, Táklang pass.

Barometers:	5, Adie.	8, Pistor.
Millim.	397·0	398·1
Corr.	+ 1 6	+ 0 6
	398 6	398 7

1856, June 23, Lácha Lung pass.

Barometers:	5, Adie.	8, Pistor.
Millim.	413 2	411·1
Corr.	+ 1 6	+ 0·6
	414·8	414 7

1856, July 2, Leh.

Barometers:	5, Adie.	8, Pistor.
Millim.	514 6	515 6
Corr.	+ 1 6	+ 0 6
	516 1	516 2

1856, July 3 and 1, Leh.

Barometers:	5, Adie.	8, Pistor.
Millim.	515 4	515·5
Corr.	+ 0 7	+ 0·6
	516·1	516 1

Barometers:	3, Adie.	8, Pistor.
Millim.	515 3	515 3
Corr.	+ 0·7	+ 0·6
	516 0	515 9

1856, October 29, Srinágger. 1st series.

Barometers:	7, Pistor.	8, Pistor.	11, Pistor.
Millim.	634·6	635·2	635·4
Corr.	+ 1·3	+ 0·6	+ 0 5
	635·9	635 8	635 9

1856, November 1, Srinágger. 2nd series.

Barometers:	7, Pistor.	8, Pistor.	10, Pistor.	11, Pistor.
Millim.	636 6	637 4	637·3	637·4
Corr.	+ 1 3	+ 0 6	+ 0 6	+ 0·5
	637 9	638 0	637 9	637 9

1856, December 2, Raulpíndi.		
Barometers:	6, Adie.	8, Pistor.
Millim.	721 1	721 9
Corr.	+ 1 3	+ 0 6
	722·4	722·5

1857, January 25 to 29, Peshâur.		
Barometers:	6, Adie.	11, Pistor.
Millim.	732·0	732 8
Corr.	+ 1·3	+ 0·5
	733 3	733·3

1857, April 14, Bombay Observatory.

Barometers:	Newman, 58.	7, Pistor.
	30·077 inches.	Millim. 762·6
	= 763 9 millim.	Corr. + 1·3
		763·9

We add:

e. *General Table of the corrections of the barometers.*

All the barometric readings given in this volume, have been corrected from this table.

No. given by us.	Maker's Name, and No.	Periods.	Corrections
			Millim
Barom. 1, Greiner.[1]	Greiner 1.	1854, October 20, to 1856, August 3; not used subsequent to this date.	+ 0·1
„ 2, Pistor.[1]	Pistor 1.	1854, September 20, to 1855, September 30; not used subsequent to this date.	− 0 1
„ 3, Oertling.	Oertling 1.	1854, December 10, to 1855, January 3.	+ 0 7
		1855, January 4, to 1855, January 5.	+ 0 9
		1855, January 6, to 1855, February 14; not used subsequent to this date.	+ 1·5
„ 4, Adie.	[2]Adie 1.	1854, September 20. to 1856, January 10.	+ 0 6
		1856, April 5, to 1856, June 18; not used subsequent to this date.	+ 0 9
„ 5, Adie.[1]	[2]Adie 5.	1854, September 20, to 1855, January 1.	+ 0 3
		1855, March 15, to 1856, October 11; not used subsequent to this date.	+ 1·6
„ 6, Adie.[1]	[2]Adie 6.	1855, March 18, to 1856, March 22.	+ 1 0
		1856, April 4, to the end of the journeys.	+ 1 3
„ 7, Pistor.[1]	Pistor 959.	1856, May 3, to 1857, April 29.	+ 1 3
„ 8, Pistor.[1]	Pistor 960.	1856, May 3, to 1857, February 2; not used subsequent to this date.	− 0 6
„ 9, Pistor.[1]	Pistor 961.	1856, May 3, to the end of the journeys.	+ 0 7
„ 10, Pistor.[1]	Pistor 962.	1856, May 3, to 1857, April 29.	+ 0·6
„ 11, Pistor.[1]	Pistor 963.	1856, May 3, to the end of the journeys.	+ 0 5
„ 12, Newman.	Newman 1.	The corrections of these barometers are not constant, but vary with the elevation. The amount of the correction for these instruments, which were rarely used but for corresponding observations, was always ascertained by direct comparison with one of the standard barometers at very nearly the same atmospheric pressure. See p. 13.	
„ 13, Newman.	Newman 2.		
„ 14, Newman.	Newman 3.		
„ 15, Troughton.	Troughton 1.		
„ 16, Troughton.	Troughton 2.		

[1] Standard barometers. See p. 12. [2] These instruments have also a correction of scale. See p. 12.

19777.

II. THERMO-BAROMETERS, OR BOILING-POINT THERMOMETERS.

Besides barometers, we had with us several thermo-barometers, or boiling-point thermometers,[1] which were constructed with much greater nicety than the ordinary thermometers, and answered their purpose exceedingly well.[2] When travelling in disguise, and under the necessity of concealing our instruments, we were obliged to leave our barometers behind, and to limit ourselves entirely to the use of thermo-barometers. Travellers placed in circumstances of similar difficulty will, we think, find these instruments preferable to barometers, as they are more portable, can be carried with greater ease and safety, and are much less liable to get out of order. Great accuracy, moreover, is attainable with them in the determination of heights, and their general advantages, which we can speak to from experience, are such as to induce us to give a detailed description of their construction and use.

a. *Description of the thermo-barometers.* Our thermo-barometers were made at Berlin, by Geissler, and by Greiner. They have a length of 1 foot 9 inches, and range from 100° C. down to 78° C., so that they can be used from the sea-level to a height of about 22,600 feet. Although the range of their division did not generally allow of their being used at the same time as ordinary thermometers, yet we were able to employ them occasionally for the exact determination of the temperature of hot springs, and for experiments on insolation.

The scale does not consist of brass, but of milk glass, half an inch in width, which is placed inside a cylindrical glass tube. The great length of the instrument admits of each degree being divided into 50 parts, which are yet perfectly clear and distinct to the eye, and with a magnifying glass even tenths of these fiftieths may be easily and correctly read off.

[1] Le Monier, a physician, who made his observations in Perpignan, in the year 1739, was probably the first who used thermometers for the purpose of ascertaining heights. In India, Mr. Prinsep, Lieutenant Robinson, and Colonel Sykes, were among the very first who made comparative observations of the boiling-point at different heights. See Colonel Sykes' Memoir in the 8th Vol. of the London Geographical Society, and J. Burgess, Esq., in Journal As. Soc. Bengal, Vol. XXVII.

[2] On the continent, these instruments are occasionally called *hypsometers*, a term which we also adopted in our researches on the Alps, and in the first volume of the present work. But we have now thought it better to use the name thermo-barometer, as one giving a better definition of the construction and purpose of the instrument.

The thin tube, up which the mercury passes, enlarges at its lower extremity into a cylindrical reservoir. The bulb is of an elongated cylindrical form, 1½ inch long and ¾ inch in diameter. A cap, or perforated cylinder of brass, 3 inches in length, is screwed to the lower end of a brass collar (1½ inch long) which, fastened to the tube about an inch above the bulb, and connected with a surrounding mantle, serves to keep the thermo-barometer in a vertical position, when placed in the boiling apparatus. This cap also protects the bulb from being affected by the presence of any foreign matter accidentally introduced into the water, and which, if slightly overheated by contact with the sides or bottom of the vessel, would be the occasion of errors.

The bulb stands, not in the water, but in the upper part of the boiling apparatus, which is filled with steam only, and cannot become overheated, on account of the vapour having a free escape at the upper end.

When the water is boiling, the steam passes off through the interstice between the collar and surrounding mantle into a cylindrical brass tube placed at the top of the collar. This tube is very important; it encloses the glass scale, and, heated as it is by the steam, possesses the great advantage of screening the column of mercury from the lowering influence of the external atmosphere. It is composed of several pieces, moveable like the slides of a telescope, so that the observer, who knows beforehand the approximate height of the boiling point, is able to regulate the length accordingly. The steam finally escapes through a lateral aperture at the upper end of the tube, the top of which is covered by a flat piece of caoutchouc to prevent the condensation of vapour on the upper parts of the cylinder, where the scale is to be read.

The boiling vessel, which is filled with water to a depth of about 3 inches, consists of a cylinder, 6½ inches by 2½. The upper part of the sides is perforated with several holes, through which the steam passes into an outer cylinder of the same length, but of a larger diameter. This mantle, which, as far as we know, is very rarely, if ever, made use of, serves to prevent the cooling of the apparatus by contact with the outer air, and if not applied, it is occasionally impossible—as in a strong wind—to obtain a steady reading.

The boiling vessel, provided with three legs, which are made to unscrew, for convenience of packing, may be placed either over charcoal, or over an ordinary spirit lamp.

The method we adopted was to place it over a small vessel filled with charcoal, of which a comparatively small supply would last for a considerable time. This vessel—a square iron trough, with sides 3 to 4 inches long, and 4 inches deep—was 1½ pound in weight, and was firmly connected with the boiling apparatus, for which it formed a good support, by a bayonet joint. Through two small holes, perforated in the sides, the lighted charcoal could be kept alive by means of a bellows, or by blowing upon it with the mouth.[1]

With such an apparatus the observer is always sure to succeed in making the water boil properly. Spirit lamps we never employed, the use of them being attended with many disadvantages. Not only is it a serious additional encumbrance to carry about a sufficient supply of spirits of wine, but sometimes it is exceedingly difficult to get the water to boil at all. It may even happen, that an observer may consider his experiment as concluded, when he sees the thermometer no longer rising, even though the mercury may not yet have reached the boiling-point. Such a case may easily take place during strong winds, when more precaution than usual must be observed.

In the plains of India we used distilled water only for boiling, of which we always had a large supply with us; in High Asia we occasionally had recourse to melted snow. Before making an observation, the boiling apparatus was carefully cleaned out.

An overheating of the steam was not to be feared, the fire lighted being very small in comparison with the water to be converted into vapour. Solution of salt in the water employed—ordinary spring, or river water, for instance—would not, it is true, directly affect the temperature of the steam developed; but in consequence of the comparative proximity of the vessel of the thermo-barometer to the surface of the boiling water, radiation could not be sufficiently excluded, and might perhaps, though to a very small extent, erroneously affect the temperature.

b. *List of the thermo-barometers.* Upon our departure from England, in 1854, we had with us eight thermo-barometers of this fine and delicate construction. Two of them were broken on the overland journey, and two others got out of order on

[1] We may here mention, that the natives engaged by us, and more especially those of Sikkim, employed for this purpose a kind of cylinder. This tube, which was generally a bamboo cane, they held *at some distance* from the mouth, applying it with considerable dexterity.

our way from Bombay to Madras, so that, during our travels, we could only make use of three of the instruments, marked respectively: 5, Greiner, 7, Geissler, and 8, Geissler; and with these three the greater part of our thermo-barometric observations were taken. Seeing the good results obtainable by thermo-barometers, we subsequently used two of our best thermometers as thermo-barometers.

In India we received, through the kindness of our friends, several additional thermometers, which, however, were of a somewhat less delicate construction than those already mentioned.

The following table contains the list of the thermo-barometers used, with their scale division and the name of the maker. The asterisk distinguishes those with the more delicate construction as detailed above.

No.	Maker's Name, and No.	Scale.	No.	Maker's Name, and No.	Scale.
1*	Greiner 23	French Lines	5*	Geissler 5	Centigrade
2*	Greiner 132	Centigrade	6	Geissler 20	Centigrade
3	Unknown	Fahrenheit	7*	Geissler 7	Centigrade
4	Geissler	Centigrade	8*	Geissler 8	Centigrade

Thermo-barom. 1, by Greiner of Munich, was given to us at Calcutta, March, 1856, by Baron George Liebig, and had already been used by him in taking observations. It was employed by our assistants, Mr. Monteiro and Eleazar, from June to September, 1856, when they marched from Símla, through Kángra and Jámu, to Kashmír.

Thermo-barom. 2, Greiner. A spare instrument, but occasionally used during our travels in Turkistán. Each degree was divided into 50 parts.

Thermo-barom. 3. We were furnished with this instrument by Professor Halleur at Calcutta, in March, 1856. Some comparisons, however, showed that this thermo-barometer, which was divided into half degrees of Fahrenheit, was affected with great irregularities, so that we never made any use of it.

Thermo-barom. 4, Geissler, an ordinary, but very good, thermometer, divided into tenths of a degree, was used and made over to Lieutenant Adams, who kept it as a spare instrument in case of an accident happening to thermo-barometer 6.

Thermo-barom. 5, Geissler. With this instrument we made nearly all our determinations of heights in Turkistán. Each degree was divided into 50 parts. It was generally with Hermann.

Thermo-barom. 6, Geissler. Originally an ordinary thermometer, which, on account of its accurate division and small error, was very successfully used by Lieutenant Adams during his travels in Assám and along the river Bóri Dihíng. The instrument was divided into tenths of a centigrade degree, and, with a magnifier, could be read off in fiftieths with sufficient accuracy.

Thermo-barom. 7, Geissler, and 8, Geissler. No. 7 was generally with Adolphe, No. 8 with Robert. The greater part of the heights in Gnári Khórsum, and some also in Málva, have been determined by them. Subsequently the columns of mercury parted, and all efforts to unite the divided threads proving unsuccessful, the instruments were given up as useless.

c. *Determination of the corrections of the thermo-barometers by comparison with barometers.*

The corrections were ascertained in the usual way for those two of our instruments which had originally been ordinary thermometers, viz., Nos. 4 and 6. Their error at freezing point (0° C. = 32° Fahr.) was determined by placing them in pulverized ice; for higher temperatures, by comparison with standard thermometers; and for corrections near boiling-point, recourse was had to simultaneous readings of the barometer. The error for each degree of the scale was then found, either by interpolation, or by simple construction of curves.

The definitive determination of the errors of the delicate thermo-barometers, as Nos. 1, 2, 5, 7, and 8, presented much greater difficulties, if due allowance was to be made for the full value of their scale divisions. Such inquiries could be followed out with two distinct objects in view, the one practical, the other theoretical, and each independent of the other.

For practical purposes, the most direct way of operating was to procure numerous direct comparisons of the thermo-barometers with a barometer at different heights. Such series, if sufficiently detailed, served to eliminate the error of the scale division, and even made us independent of any slight error, which might possibly exist in the numeric tables generally used for converting the boiling-point into the corresponding pressure of the atmosphere.

The two following elements of disturbance, may, however, interfere with the limits of the nicest accuracy in such observations:

a. An alteration in the size of the bulb by gradual contraction, or expansion.

b. A temporary, or permanent alteration in the size of the bulb, from long exposure to atmospheres of different pressure.

In our instruments neither of these causes of error were appreciable. Although, after our arrival in India, repeated determinations of the boiling-point at low elevations were made at different places, both at the commencement and middle of our journeys, as also at the station near the level of the sea, which we reached on our return from the interior, yet we were never able to detect any appreciable increase of the corrections, a result which would certainly have followed from a contraction of the bulb with time.[1]

With respect to this regularity of their action, something is due to the fact of the instruments having left the maker's hands some months previous to our departure from England. A comparison of the corrections determined at Kew with those ascertained by ourselves a few days after our arrival in India showed a very slight expansion to have taken place. It was of no importance, however, in itself, and did not undergo any subsequent increase.

The thickness of the glass used in the construction of the instruments proved very useful, and entirely excluded temporary expansion of the bulb at great heights. My brothers noticed variations of this character in their thermo-barometers on Monte Rosa,[2] and afterwards proved by direct experiments with the air pump, that the lessening of the atmospheric pressure has the immediate effect of somewhat expanding the bulb, when the glass is too thin. The observed boiling-point is thus lowered; but if the glass is made thicker, this disadvantage may be obviated. The thermo-barometer, by this modification, is certainly rendered a little less sensitive, though in an experiment where the instrument, from its general dimensions, must remain in

[1] Flaugergues was the first who drew attention to this interesting fact. The amount of the contraction, in extreme cases, exceeds 1° C. See "Bibliotheque universelle de Genève, 1823." Mr. d'Abbadie has proved, that even Person's method of boiling the instruments in a solution of nitrate of potash previous to taking observations is not sufficient for the due, regular expansion of the bulb to its normal limits. See "Cosmos" 15th livraison, October 12, 1860.

[2] Neue Untersuchungen. Leipzig 1851, p. 276.

steam for a considerable time, such an alteration is a matter of absolutely no importance.

In the following tables we give the full detail of our numerous comparisons, of which several have been made at heights exceeding 18,500 feet; in them we include only those delicate instruments that were originally constructed as thermo-barometers (Nos. 1, 2, 5, 7, and 8 of the list p. 25). The simultaneous barometer readings, completely corrected (for temperature, scale error, capillarity, &c.), are reduced to corresponding boiling-points according to Regnault's revised tables[1]; and, as our *fundamental* determinations, given p. 33—35, will show, these tables may be considered as in perfect accordance with the results of absolute comparisons. We therefore obtain, as their immediate result, the instrumental errors of the several thermo-barometers.

Mr. Wisse, who also took simultaneous observations of the temperature of the boiling-point of water and the height of the barometer, had 430 millimetres = 16·929 inches as lowest barometric pressure at the summit of the volcano of Pichína.[2] Dr. Hooker, who during his travels also made thermo-barometric observations, found his lowest boiling-point at the Dónkia mountain to be 179·9 Fahr. = 15·234 inches.[3] His instruments were not, however, of a construction to furnish data for ascertaining the correctness, or otherwise, of the thermo-barometric tables hitherto in use.

The greatest height at which we compared thermo-barometers with barometers, as will be seen by the following tables, was at Íbi Gámin camp, 19,323 feet above the level of the sea, where the barometric pressure was 375·6 millimetres = 14·788 inches (see p. 31).

[1] Regnault's tables, revised by A. Moritz, in the Journal de l'Institut, 1856. These tables are given in detail in part I., No. VI., of this Vol.

[2] See Annales de Chimie et de Physique, Tom. XXVIII., p. 123.

[3] See Hooker's "Himálayan Journals," Vol. II., p. 158.

CORRECTIONS OF THE THERMO-BAROMETERS, ASCERTAINED BY DIRECT COMPARISONS WITH BAROMETERS.

Thermo-barometer 1, *Greiner.*

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer 1, Greiner.		Simultaneous barometric Readings.		Correction of Thermo-barometer 1, Greiner, in Millimetres
Name.	Height.			French Lines.	Converted into Millimetres.	No. of Barometer.	Millimetres.	
	Feet.							
Peshâur	1,280	1857, Jan. 26	Adolphe	324·3	731·6	11, Pistor	726·2	+ 5·4
Kashmîr	5,146	1856, Oct. 29	Robert	279·0	629·4	6, Adie	631·4	+ 2·0
Simla	7,057	1856, April 12	Robert	257·4	580·7	4, Adie	585·8	+ 5·1

From these three comparisons is calculated the correction of thermo-barometer 1, Greiner, at various boiling-points. The following are the values obtained:

Thermo-barometer.		Correction in Millimetres.	Thermo-barometer.		Correction in Millimetres.	Thermo-barometer.		Correction in Millimetres.
French Lines.	Converted into Millimetres.		French Lines.	Converted into Millimetres.		French Lines.	Converted into Millimetres.	
200	451·2	+ 14·6	250	564·0	+ 6·6	300	676·8	− 1·4
210	473·7	+ 13·0	260	586·5	+ 5·0	310	699·3	− 3·0
220	496·3	+ 11·4	270	609·1	+ 3·4	320	721·9	− 4·6
230	518·8	+ 9·8	280	631·6	+ 1·8	330	744·4	− 6·2
240	541·4	+ 8·2	290	654·2	+ 0·2	340	767·0	− 7·8

Thermo-barometer 2, *Greiner.*

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer Readings	Simultaneous barometric Readings.			Correction. C. degrees
Name.	Height				No. of Barometer.	Millimetres.	Millimetres, reduced to Boiling-Points, C. degrees.	
	Feet.							
Bombay	38	1857, April 14	Robert	100 51	7, Pistor	759 7	99 99	− 0 52
Kashmîr	5,146	1856, Oct. 26	Hermann	95 41	6, Adie	631·6	94 91	− 0 50
Leh	11,532	1856, July 6	Hermann	89 14	1, Greiner	500 1	88 71	0 43

From these three comparisons, which are taken at different boiling-points, we obtain the following corrections, to be applied at the intermediate points of the scale.

Boiling-points. C. degrees.	Corrections. C. degrees.	Boiling-points. C. degrees.	Corrections. C. degrees.
100 to 95	— 0·51	91·99 to 90	— 0·46
94·99 to 92	— 0·49	89·99 to 50	— 0·43

Thermo-barometer 5, Geissler.

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer Readings. C. degrees.	Simultaneous barometric Readings.			Correction. C. degrees.
Name.	Height.				No. of Barometer.	Millimetres.	Millimetres, reduced to Boiling-Points. C. degrees.	
	Feet.							
Símla	7,057	1856, May 20	Adolphe	93·19	1, Greiner	588·3	93·00	— 0·19
Leh	11,532	1856, Oct. 2	Robert	88 89	8, Pistor	500·1	88·71	— 0·18
Leh	11,532	1856, July 14	Hermann	88·76	8, Pistor	498·4	88·62	— 0·14

Mean correction for all readings — 0°·17 C.

19777.

Thermo-barometer 7, Geissler.

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer Readings. C. degrees.	Simultaneous barometric Readings.			Correction. C. degrees.
Name.	Height.				No. of Barometer.	Millimetres.	Millimetres, reduced to Boiling-Points. C. degrees.	
GROUP I.								
	Feet.							
Súni	2,105	1856, April 7	Robert	97 99	4, Adie	704 6	97·90	— 0·09
Petólia	3,234	1855, Sept. 12	„	96 84	2, Pistor	675·7	96·75	— 0·09
Petólia	3,234	1855, Sept. 12	„	96 74	2, Pistor	673·5	96·66	— 0·08
Ókimath	4,285	1855, Sept. 15	„	95·89	2, Pistor	652 9	95·81	— 0·08
Ókimath	4,285	1855, Sept. 16	„	95 85	2, Pistor	651 7	95·76	— 0·09

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer Readings. C. degrees.	Simultaneous barometric Readings.			Correction. C. degrees.
Name.	Height.				No. of Barometer.	Millimetres.	Millimetres, reduced to Boiling-Points. C. degrees.	
				Group II.				
	Feet.							
Jhósimath .	6,089	1855, Sept. 9	Robert	94·06	2, Pistor	610·4	93·99	— 0 07
Pandukéser	6,113	„ „ 8	„	93·99	„	608 2	93·89	— 0 10
Jhósimath .	6,089	„ „ 9	„	93 98	„	607·0	93 84	— 0·14
Gaurikúnd .	6,417	„ „ 24	„	93·78	„	603·2	93·67	— 0·11
Gaurikúnd .	6,417	„ „ 23	„	93 73	„	601·2	93·58	— 0·15
Gaurikúnd .	6,417	„ „ 19	„	93·64	„	601 0	93·57	— 0·07
Giunálj . .	7,152	„ „ 29	„	93·13	„	587·3	92·95	— 0·18
Símla . . .	7,057	1856, April 12	„	93·00	4, Adie	585 7	92 88	— 0 12
Trichugi Naráin .	7,217	1855, Sept. 24	„	92·96	2, Pistor	585 2	92 86	— 0 10
				Group III.				
△ Minasáura	9,631	1855, Sept. 28	Robert	90 76	2, Pistor	537·9	90 62	— 0 14
Bádrinath .	10,124	„ „ 7	„	90 20	„	527·5	90 10	— 0·10
Bádrinath .	10,124	„ „ 5	„	90 18	„	526·6	90 06	0 12
Bádrinath .	10,124	„ „ 6	„	90·12	„	525·6	90 01	— 0 11
Mángu pass	10,597	„ „ 26	„	89·87	„	520·0	89·73	— 0·14
Mána .	10,308	„ Aug. 28	Adolphe	89 85	6, Adie	519·1	89 69	— 0 16
				Group IV.				
Kídarnath .	11,794	1855, Sept. 20	Robert	88 78	2, Pistor	498·1	88 61	— 0·17
Kídarnath .	11,794	„ „ 20	„	88·67	„	497·8	88·59	— 0 08
△ Shemkárik	12,798	„ June 11	Adolphe	87 66	6, Adie	477·2	87·49	— 0 17
△ Laptél . .	13,994	„ July 14	Robert	86 70	„	459 6	86 53	— 0 11
△ Loáka .	15,831	„ „ 7	Adolphe	84·72	„	425·8	84·58	— 0 14
				Group V.				
△ Íbi Gámin	17,813	1855, Aug. 16	Adolphe	83·02	6, Adie	397·7	82 85	— 0 17
Jánti pass .	18,529	„ July 10	Robert	82·20	„	385·5	82·07	— 0·13
Jánti pass .	18,529	„ „ 11	„	82 16	„	385 5	82 07	— 0 09
△ Íbi Gámin	19,323	„ Aug. 18	Adolphe	81 56	„	375·6	81·42	— 0 14

From the mean correction of each of these five groups we obtain the following corrections for the different boiling-points.

98° to 96°	— 0·09	91·99 to 90°	— 0·12
95·99 to 94	— 0·10	89·99 to 81	— 0·13
93·99 to 92	— 0·11		

Thermo-barometer 8, *Geissler.*

Place of Observation.		Year, and Date.	Observer.	Thermo-barometer Readings. C. degrees.	Simultaneous barometric Readings.			Correction. C. degrees.
Name.	Height.				No. of Barometer.	Millimetres.	Millimetres, reduced to Boiling-Points, C. degrees.	
				GROUP I.				
	Feet.							
Púna	1,746	1855, Jan. 3	Adolphe	98° 33	5, Adie	712·9	98·22	— 0 11
Lária Kánta	8,342	1855, May 8	Robert	92 24	6, Adie	569·3	92·12	— 0·12
Lária Kánta	8,342	1855, May 7	„	92·16	6, Adie	567·7	92·05	— 0 11
Chíner peak	8,737	1855, April 29	Adolphe	91·79	6, Adie	559·6	91·66	— 0 13
				GROUP II.				
Mána	10,308	1855, Aug. 28	Adolphe	89·87	6, Adie	519 1	89 68	— 0 19
Mílum	11,265	1855, June 1	Robert	89·14	2, Pistor	505·7	89·00	— 0·14
				GROUP III.				
△ Laptél	13,994	1855, July 14	Robert	86·69	6, Adie	459·6	86 52	— 0 17
△ Loaka	15,831	1855, July 7	Adolphe	84·76	6, Adie	425·8	84·58	— 0 18

From the mean correction of each of these three groups we obtain the following corrections for the different boiling-points:

100° to 96°	— 0·12	93·99 to 92°	— 0·15
95·99 to 94	— 0·13	91·99 to 90	— 0·16
94·99 to 92	— 0·14	89·99 to 88	— 0·17
		87·99 to 81	— 0·18.

d. *Fundamental determination of the corrections.* For fundamental determinations, made for the purpose of testing the limits of accuracy in the tables for reducing boiling-points into barometric pressure, it was necessary to ascertain:

a. the correction of the thermo-barometers at 760 millimetres pressure, and

b. the gradual change of this correction for various points of the scale.

Such differences exist in nearly every thermometer.

In the construction of our thermo-barometers, where the scale does not commence before from 78° to 82° C., the maker can consider the boiling-point alone as defined, whilst in ordinary thermometers the freezing point also offers a limit of the scale equally well defined.

From the records of the Kew Observatory, which the officers of that establishment with their usual kindness communicated to us (see p. 15), we obtain, for thermo-barometers 7 and 8, in September, 1854:

1.	The correction at 100° C. =	− 0°·07 C.	for thermo-barom. 7.
		− 0·15 C.	„ „ 8.
2.	„ „ „ 82 C. =	− 0·25 C.	„ „ 7.
	„ „ „ 83 C. =	− 0·20 C.	„ „ 8.

A careful examination of the calibre of the capillary tube showed, that there was no appreciable deviation from the gradual alteration of these corrections to be proportional to the readings.

At Bombay, in Dec., 1854, we found the correction at 100°·26 Centigrade

for thermo-barom. 7	− 0°·05
for thermo-barom. 8	− 0·12

the bulb having, it seems, somewhat expanded from the effects of successive shocks (see p. 27).

In order to be more independent of accidental modifications connected with the several instruments and their observations, we take, in the following readings, the mean of 7 and 8. The corrections for these mean readings are based on the Kew observations, whilst, at the same time, the alteration observed near the boiling-point at Bombay is considered a constant difference for the entire scale.

The corrections become:

Temperature. Centigrade.	Mean Corr. for Thermo-barom. 7 and 8. Centigrade.
100·25	— 0·09
95·25	— 0·13
90·25	— 0·16
85·25	— 0·20
82·25	— 0·22

As the thermo-barometrical tables in use agree for a pressure of 760 millimetres,[1] and differ very little in its neighbourhood, we select from the lists pp. 31 and 32 those observations where the two thermo-barometers have been read simultaneously at very great heights, and compare the barometric pressure directly observed with the results of Regnault's tables, as revised by Moritz, and also with those of Magnus.[2]

ABSOLUTE COMPARISON OF THE BAROMETER WITH THERMO-BAROMETERS.

Place of Observation.	Year, and Date.	Height.	Thermo-bar. Readings. Centig.			Mean Correction for Thermo-barom. 7 and 8.	Thermo-barom. Mean corrected. Centigrade.	Barometer.	
			Thermo-barom. 7.	Thermo-barom. 8.	Mean			Simultaneous barom. Readings.	No.
		Feet.							
Mána	1855, Aug. 28	10,308	89 85	89 87	89·86	— 0 17	89 69	519·1	6, Adie
Laptél	1855, July 11	13,991	86 70	86·69	86 695	— 0 19	86·50	459·6	6, „
Loáka	1855, July 7	15,831	84 72	84·76	84 74	— 0·21	84 53	425·8	6, „

[1] Their agreement near the boiling-point is the natural consequence of the experiments on which they are based.

[2] The well known and careful researches of Magnus are contained in "Poggendorff's Annalen der Physik und Chemie". Vol. 61, pp. 225 - 247; 1844. As the general table only gives the values for every full degree of Centigrade, the numbers given p 35 are calculated from Magnus' formula:

$$e = 4{\cdot}525 + 10^{\frac{7{\cdot}4475\,t}{234{\cdot}69 + t}}$$

where t is the observed temperature of the boiling-point.

Comparison of *observed* Boiling-points with *calculated* Tables.

Place of Observation.	Observed Boiling-Point, corrected for instrumental Error. Centigrade.	Simultaneous barom. Readings reduced to 0° C., and corrected for instr. Error.	Observed Boiling-Points, reduced to Millimetres, from the Tables of	
			Regnault, revised by Moritz.	Magnus.
Mána	89·69	519·1	519·2	518·6
△ Laptél	86·50	459·6	459·2	458·5
△ Loáka	84·53	425·8	425·1	424·4

The accordance could not be closer, particularly with Regnault's tables, whilst the values of Magnus appear to be a little too low for great heights. The determinations of the latter, however, must be considered as remarkably correct, when it is remembered that, at these heights, an alteration of the boiling-point of 0°·05 C. only produces a difference of 1·1 millimetres.

III. ANEROIDS.

There has been much discussion in reference to the utility of aneroids, which, if sufficient reliance could be placed upon them, would certainly be the most convenient instruments for determining heights. Some detailed series of observations and ingenious experiments, made in India by scientific gentlemen,[1] have clearly demonstrated, that aneroids, when kept stationary at one place, and not exposed to great changes of temperature, indicate the variations of the atmospheric pressure with a considerable degree of correctness.

They can also be used with advantage, if previously compared with barometers, up to heights of about 5,000 feet. The results of our own experience seem so far to corroborate the observations of our predecessors; we have, however, found that, without the aid of very frequent simultaneous comparisons with barometers, aneroids can never be used with any degree of accuracy for the determination of heights, or of atmospheric pressure. If compared with barometers, they may be successfully employed as instruments for interpolation, when the relative height does not exceed 4,000 feet. We have repeatedly had occasion to observe that, at heights of more

[1] Dr. G. Buist, on the adaptation of the aneroid for the purposes of surveying in India. Journal of the Asiatic Society of Bengál, 1851. In this elaborate memoir, the late Dr. Buist has included the observations of Major Thuillier and Professor Patton.

than 15,000 feet, the vacuum cylinder, or metallic chamber, of the aneroid requires a considerable time to indicate, with some approximation, the low pressure of the upper station. The same slowness of adjustment occurs again in a rapid descent from the height.[1] Therefore, the instrument can be but very cautiously used for the determination even of small differences of height.

The fact of a barometer being out of order is easily established; to ascertain the correctness of a thermo-barometer is also a matter of no difficulty; but, from the peculiarity of the construction of the aneroid, it is impossible to detect at once any incipient derangement in its parts, or to ascertain the exact amount of error produced by it. Even when most carefully packed (our aneroids were placed in large bags, thickly stuffed with cotton, and carried by men), they are greatly affected by the slight shocks which it is too often impossible to avoid when travelling over bad roads, or in mountainous districts. For the determination of heights, thermo-barometers, even of an inferior construction, are decidedly to be preferred to aneroids.

We had in all nine aneroids with us, three made by Oertling of Berlin, five by Imme of Berlin, one by Hohnbaum of Hanover. Those of Oertling, which had a circular opening in the dial plate, so as to allow of a minute inspection of its machinery, were extremely liable to get out of order, and a sudden increase of temperature, or even a slight shock, seriously affected the action of the lever. Imme's aneroids, as well as that of Hohnbaum, were very carefully and solidly constructed, and sustained much better the unavoidable casualties of travelling.

The division of our aneroids was in millimetres,[2] ranging from 780 to 350, so as to admit of their being used even at heights exceeding 22,000 feet. Being able, in all our journeys, to take with us either a barometer, or thermo-barometer, we were under no necessity of using aneroids for the determination of heights, and accordingly employed them only for the measurement of small relative heights, also for calculating the amount of erosion, and thickness of geological strata, and occasionally for determining the limit of trees, and other less strictly defined objects.

[1] A detailed discussion on aneroids, based upon several experiments at great heights of the Alps, is contained in the "Neue Untersuchungen über die physikalische Geographie der Alpen", von Hermann und Adolph Schlagintweit, Leipzig, 1854, p. 428, where also an attempt is made to explain the influence of time on the gradual accommodation of the aneroid to the pressure at various heights.

[2] We had also the boiling-points, corresponding to the millimetres, engraved on the dial plate, an arrangement possessing the additional advantage, that it allows of the aneroid being checked by comparison with the thermo-barometer. See note on its use for rough estimations, p. 78.

IV. THERMOMETERS.

The thermometers (dry and wet bulb) that we used for the determination of the temperature of the air had Centigrade scales, and were made by Geissler, and Greiner, both of Berlin, and by Greiner of Munich. We had also two standard thermometers by Newman of London. The division, in tenths of a degree, was in some instruments made upon milk glass, in others upon paper, and each of the scales was enclosed in a glass tube.

These tubes not only have the advantage of protecting the scale from dust and moisture; but in those instances more particularly where wet bulb thermometers are used, or the temperature of the ground, water, &c., is to be taken, they modify, in a very marked degree, the discrepancies arising from the inequality of the thermic conditions between the bulb and the capillary tube. Glass scales we think preferable to the metal ones of English construction; they are less liable to be affected by changes of temperature, and their connection with the capillary tube is made permanent by the glass cylinder surrounding them. The two standard thermometers of Newman had a division on the glass itself. This arrangement serves all the requirements of the extremest accuracy in the institution of comparisons, but is defective when the bulb and stem are not in equal conditions of temperature.

To make the thermometers as portable as possible, the scales of many of them were limited to a short range, some extending from — 10° C. to 40° C., one to 60° C., and a few only up to 100° C. Some of the latter were, as already stated, also used as thermo-barometers (see p. 25).

Before our departure, the corrections of all thermometers were most carefully recorded for different temperatures at the Kew Observatory, and while in India we repeatedly ascertained the amount of error, either by determinations of the zero point in ice,[1] or by comparisons with the standard thermometers at the Observatories of Bombay, Madras, and Calcutta.

In general the thermometers kept their original correction, the amount of which may be stated on a fair average, as — 0°·2 C.; a few, however, showed corrections

[1] Ice is now brought in large quantities to the seaports of India, being sent round the Cape, from America, and more particularly from the Wenham lake. In some parts of the interior it is artificially procured during the cool season, by exposing water in flat vessels to the refrigerating effects of nocturnal radiation.

as large as — 0°·5 C., and even — 0°·6 C. In the case of two instruments only the correction was positive.

We took with us to India, for ourselves and our establishments, upwards of sixty thermometers (each marked with a number), of which, however, scarcely more than six or eight have been brought back in a serviceable state. Some of them were lost at Káshgar, together with other instruments and effects belonging to Adolphe; several, from constant use, and the wear and tear incidental to travelling, were rendered useless by the separation of the mercury column; while others, in spite of our utmost precautions to ensure their safety by careful package in metal cylinders placed in cotton bags, got broken, either through unavoidable accident, or by the operation of natural causes.

Four thermometers were smashed to pieces during the remarkable hail-storm, 1855, May 11, 5^h to 6^h 30^m P.M., which came upon us unexpectedly when we were at Nainitál;[1] four were lost, 1855, July 15, at △ Laptél, a halting place, 13,994 feet above the level of the sea. The day was unusually hot, and the kúli who carried the instruments had put them on the ground, the surface of which, as we afterwards found, was at a temperature of nearly 50° C. = 122° Fahr. The thermometers having a scale of 40° C. only, their bulbs were cracked by the expansion of the mercury.[2]

[1] A detailed account of this hail-storm will be given in the meteorological part of our publications.

[2] Our experience leads us to suggest, as extremely useful for the purposes of the scientific traveller, that the thermometers should all be provided with scales ranging from freezing to boiling-point. This completeness of range not only renders them available in extraordinary instances, as extreme insolation of the ground, hot springs, &c., but, while allowing of more accuracy in the determination of corrections, dispenses in a degree with the necessity of comparison *in loco* with standards.

If short ranges are used, as may be sometimes desirable when very minute divisions are required, the instruments should, at all events, have an enlargement in the upper part of the tubes, as a provision for the expanded mercury.

II. CORRESPONDING METEOROLOGICAL STATIONS.

A. Geographical co-ordinates of the corresponding stations.

B. Instruments and hours of observation, at the stations. 1. Bombay 2. Madras 3. Calcutta. 4. Gohatti. 5. Darjiling. 6. Pátna. 7. Ágra. 8. Aligárh. 9. Ambála. 10. Peshawr 11. Massúri. 12 Banog Hill. 13. Símla. 14. Leh.

C. Secondary corresponding stations.

D. Selection of the corresponding stations.

In addition to the registers kept by the Government Observatories of Bombay, Madras, and Calcutta, we are indebted to the scientific zeal of several gentlemen, whom we had the pleasure of meeting during our travels in India, for a large number of observations corresponding to those taken by ourselves.

These observations, it is hardly necessary to add, have formed a most valuable basis for the calculation of our heights, as they enabled us to connect every point of our observations with the sea shore, or with inland stations of known elevation. At comparatively few places only observations had to be interpolated, and this when our hours of observation did not exactly coincide with those of the corresponding stations.

The following table contains the geographical co-ordinates of our corresponding stations, and is succeeded by a description of each station, together with a few general remarks.

A. GEOGRAPHICAL CO-ORDINATES OF THE CORRESPONDING STATIONS, USED FOR THE CALCULATION OF BAROMETRIC HEIGHTS.

Station.	Latitude North.	Long. East Green.	Height of the Barometer above the Level of the Sea.
	° ′ ″	° ′ ″	Feet.
1. Bombay . . .	18 53 30	72 49 5	38
2. Madras . . .	13 4 11	80 13 56	27
3. Calcutta . . .	22 33 1	88 20 34	18
4. Gohátti . . .	26 5 50	91 43 45	134
5. Darjíling . .	27 3 0	88 15 15	7,168
6. Pátna	25 37 12	85 7 32	170
7. Ágra[1]	27 10 26	78 1 39	657
8. Aligárh . . .	27 53 50	78 3 55	750
9. Ambála . . .	30 21 25	76 48 49	1,026
10. Pesháur . . .	34 3 10	71 33 19	1,280
11. Mássúri . . .	30 27 35	78 3 0	6,590
12. Banóg Hill .	30 28 30	77 59 58	7,549
13. Símla	31 6 6	77 7 36	7,057
14. Leh	34 8 21	77 14 36	11,532

B. INSTRUMENTS AND HOURS OF OBSERVATION.

1. *Bombay.* The hourly observations, magnetic and meteorological, taken at the Government Observatory (now under the superintendence of Lieutenant E. F. T. Fergusson), are published in Bombay for each year under the title: "Magnetic and Meteorological Observations, made at the Observatory, Bombay." Each volume contains a detailed description of the instruments used.

2. *Madras.* The observations taken at the Government Observatory have been kindly communicated to us in manuscript by the Government Astronomers, Major Jacob and Major Worcester.

[1] We had no occasion to use, as corresponding station, Baréli, where a series of careful observations were taken by Dr. Arthur Payne, from June to September, 1855. They will be discussed in detail in the Vols. of Meteorology.

3. *Calcutta.* Hourly registers of meteorological observations are taken at the Surveyor General's Office, and an abstract of the results is regularly published in the Journal of the Asiatic Society of Bengál. We owe a copy of the hourly observations to the kindness of Colonel Waugh and Major Thuillier.

4. *Gohátti.* The careful observations taken by Dr. Simons with a barometer by Troughton (diameter, 0·5 inch) were copied, with the observer's permission, by Lieutenant Adams. Dr. Simons' hours of observation were: sunrise, 10^h A.M., 4^h P.M., and 10^h P.M. The height of his barometer was 134 feet. A direct measurement showed it to stand 64 feet (19·5 metres) above the Brahmapútra, which is here 70 feet higher than the mean sea level. This value was deduced by calculation of the fall of the Brahmapútra, assuming for Sádia a height of 210 feet. Lieutenant Wilcox gives 130 feet as that of the *station* of Gohátti.

5. *Darjíling.* Dr. J. R. Withecombe, the Civil Assistant Surgeon of this sanitarium, has, for a number of years past, made a series of careful meteorological observations, at the so-called Observatory Hill. His barometer is by Barrow & Co., marked No. 18, and, as compared with Colonel Waugh's standard at Calcutta, had a correction of + 0·015 inch. Hermann, when comparing it in May, 1855, with his standard, 1 Greiner, found the correction to have remained unaltered. The thermometers are by Newman.

During Hermann's travels in Síkkim, Dr. Withecombe most obligingly placed the registers of his observations at the former's disposal. The hours of observation were 6^h and 9^h A.M., and 3^h and 9^h P.M. The height of Observatory Hill, 7,168 feet, has been determined by the Great Trigonometrical Survey.

6. *Pátna.* The observations at this station owe their origin to the scientific zeal of Mr. Knott, Deputy Collector. His barometer, by Newman, had a diameter of 0·01 inch, and its correction was found by comparison with one of Hermann's barometers (9, Pistor) to be + 0·067 inch.

The height of the barometer, 170 feet above the level of the sea, was calculated from Calcutta. The details are given later, in Area II.

7. *Ágra.* These observations were taken at the Office of the Secretary to the Government of the North West Provinces. We are indebted for a copy of them to Messrs. Muir and Thornhill. The hours of observation were:

6^h A.M.	12^h Noon
9^h A.M.	4^h P.M.
10^h A.M.	9^h P.M.,

though there are occasional omissions for 6^h A.M., and 9^h P.M. An abstract is published monthly in the Journal of the Asiatic Society of Bengál.

The barometer used was by Newman, marked No. 124; diameter of tube 0·562 inch. There was no appreciable correction, and it had a capillary depression of 0·005 inch. The height of the barometer at this station we have determined from simultaneous observations taken at Ágra and at the Tower Station of the G. T. S. near Ferozabád, about 26 miles E.S.E. of Ágra. The following exact description of this tower station, the top of which (trigonometrically determined) is 690 feet above the level of the sea, was communicated to us by Colonel Waugh, when we had the pleasure of seeing him at Mássúri, in October, 1855.

		°	′	″
"Tower Station near Ferozabád.	Latitude North	27	8	34
	Long. East Green.	78	22	41

"This station is at the south-east corner of an old mud fort, situated about a "quarter of a mile west of Ferozabád, in Thasíl Ferozabád, and Zíllah Ágra. The "station mark is a foot below the terre-plein of the rampart, and is surmounted by "a tower 43 feet 10 inches high and about 14 feet square; at top similar in the "materials and detail of construction to the tower at Íterpur station."

My instruments (Robert) were placed at the foot of the tower, and consequently at a height of 646 feet (top of tower 690 feet—44 feet height of tower).

The barometer at Ágra was found to be 11 feet higher than Ferozabád; therefore, height of Ágra = 657 feet. The detail of the observations is given later. The circumstance of both stations belonging to exactly the same type of climate, and also of the longitudinal difference amounting to a few minutes only,[1] may be especially adduced in favour of this determination.

8. *Aligárh.* We have received the careful corresponding observations, taken from April, 1855, to July, 1856, by Mr. Charles Gubbins. The correction of his Newman's barometer, which had been filled at Rúrki, in Jan., 1855, was found by comparison with Hermann's Greiner to be + 0·096 inch. The hours of observations were 6^h and 10^h A.M., and 4^h and 9^h P.M. The height of Aligárh, 750 feet, is the value, deduced from two months' corresponding observations at Ágra.

[1] See notes on the influence of longitude, p. 45.

9. *Ambála.* Hermann had been favoured with a valuable series of observations, taken from June, 1851, to July, 1856, by the late Dr. Tritton. This gentleman had an excellent barometer by Newman of 0·55 inch diameter (marked No. 102), which we had occasion to compare with one of our own barometers;[1] his thermometers were by Barrow, and had a correction of — 0°·9 Fahr.

Dr. Tritton has given, as the height of his instrument, 954 feet, calculated, by abbreviated formulæ, from Déra; the value adopted by us, however, is 1,026 feet, based on corresponding observations of Ágra, for detail of which see Part II., Area III.

10. *Pesháur.* The observations taken by Adolphe at this place during December, 1856, and January, 1857, served us for calculating our heights in the southern and western Pănjáb. The barometer, as well as the temperature of the air, was observed every two hours, from 6^h A.M. to 10^h P.M. We also have valuable observations, taken with an aneroid, from February 1 to March, 1857, by Dr. White. The correction of the aneroid, which had been carefully ascertained by comparison with one of Adolphe's barometers, is — 0·035 inch. Dr. White's thermometers had a correction of — 0°·9 Fahr. The details about the height of Pesháur will be given in Area III.

11. *Măssúri.* Colonel Waugh had made at this station some corresponding meteorological observations. They were taken at Gracemount (height 6,590 feet), by Mr. J. H. Hennesser, and also at Mary Villa, which, by simultaneous observations taken at Gracemount, we found to be 125 feet higher than the latter place, and therefore 6,715 feet.

The observations at Gracemount embrace eleven months, from December, 1855, to October, 1856; the barometer readings were taken about four times a day, but not always at the same hours. The temperature of the air, however, was observed more frequently. On term days, 24 hourly observations were registered. The readings at Mary Villa, of which few only coincide in time with our own observations, were generally taken twice a day, at 6^h A.M., and at 6^h P.M. They extend from December, 1855, to May, 1856.

12. *Banóg Hill.* These observations were made by Colonel Waugh, in April and May, 1853. The meteorological instruments were observed every hour, from

[1] See p. 16.

6^h A.M. to 6^h P.M. On term days the readings were taken every hour throughout the day and night.

Though the times were not simultaneous, yet, having no other data at our disposal, we were obliged to use Banóg Hill, as well as Símla and Măssúri, as corresponding stations for calculating heights in the other ranges of the Himálaya, in April and May, 1855, and from May to July, 1857.

13. *Símla.* We left barometer 12, Newman, as well as some thermometers, in the charge of a native, named Radhakíshen, the schoolmaster of this station, by whom very good observations were taken, from May to December, 1856. He observed at 6^h and 10^h A.M., and at 2^h, 4^h, and 10^h P.M. The correctness of his readings is in great measure due to the kind attention of Lord William Hay, who volunteered from time to time to check his registers and observations.

The barometer was placed in the Government school-house, at an elevation of 7,057 feet, a result we obtained by simultaneous corresponding observations at Alu Cottage, our residence at that time. The latter we found to be 130 feet below the doorway of the church, which had previously been ascertained by the G. T. S. to be 7,156 feet above the level of the sea.[1]

14. *Leh.* The height of Leh was calculated from Símla and Măssúri, from the observations taken in July, August, and September, 1856. The mean height of the cistern of the barometer was found to be 11,532 feet. The detail is given pp. 58 and 59. The sheds, in which our magnetic and meteorological instruments were put up, had been erected for the purpose close to the large house occupied by ourselves and assistants during our stay in Leh. This house is situated at the southern end of the town.[2]

C. SECONDARY CORRESPONDING STATIONS.

Besides the preceding fourteen principal stations, we were able occasionally to use as corresponding stations those places where a series of observations had been made, either by ourselves, or by our assistants, who very often were sent out along lateral routes to make corresponding observations on those points more especially which we had previously determined. Thus, Púna (where Adolphe had taken barometric

[1] The height of the church itself, from the doorway to the top of the spire, is 102 feet.

[2] See plate No. 9, 1st part of the Atlas of panoramas, views, and maps.

observations during the time of Hermann and Robert's march from Bombay to Púna) is used as corresponding station for calculating the heights determined between Bombay and Púna. Similarly, the heights determined by Adolphe and Robert during their excursion on the Mílum glaciers are calculated from Mílum and △ Róghas, where Mr. Daniel and Eleazar, our assistants, had taken corresponding observations. These few, out of many similar instances, will suffice to explain the principle upon which, notwithstanding the great additional labour of calculation, we acted, in our endeavours to make a careful selection and combination of corresponding stations.

D. SELECTION OF THE CORRESPONDING STATIONS.

The selection of the right places for corresponding stations was sometimes a matter of serious and important consideration; often, indeed, a result was not arrived at until many and various calculations had enabled us to make a choice involving the smallest final errors. The accuracy of the final determination depends, not only on the number of the corresponding stations, but also on their respective climates and distances from each other. We had, therefore, to exclude many a station, which, if included in the deduction of the mean, would have decidedly affected the correctness of the result. As a general rule, we may draw attention to the fact, that corresponding stations in a north-southerly direction are always to be preferred to those lying east and west. This remarkable fact is most intimately connected with the direction of the wind, which in India and High Asia lies in general more from west to east, than from south to north. The direction itself of the wind plainly indicates along which lines irregularities of the temperature may be expected, for the wind always blows along the line connecting the greatest irregularities. In a line, therefore, perpendicular to the direction of the wind, must be sought the stations best situated for corresponding barometric observations. Also the necessity of admitting observations situated east and west as contemporaneous, which are not so absolutely, but only in reference to local time, must of course be the occasion of slight errors. If, however, the upper station is very high, or presents at the same time a considerable difference of latitude, the effect disappears.

At these results we have arrived by calculating our observations from various stations, often far distant from each other, and differing not only in height, but

what in this case was of greater importance, in longitude and latitude also. Thus, when places due west of Leh, of not too great a relative elevation, are calculated from this point between the months of June and September, the heights resulting are too low. The same characteristic is to be noticed in winter time between Bengál and the Pănjáb. In Southern India, between Bombay and Madras, the reverse was observed in the winter of 1855.

On account of greater irregularities of climate, temperate zones are less favourable for barometric measurements of heights; nevertheless, many of the researches made in recent times with reference to this subject have given good results.[1]

[1] See. C. Prediger, uber die Genauigkeit barometrischer Höhenmessungen. Clausthal, 1860, and General de Bayer's memoir in "Poggendorff's Annalen", Vol. 98, pp. 371—96.

IV. CALCULATION OF BAROMETRIC HEIGHTS.

I. Formulæ employed.

II. Corrections for periodic Changes of the Elements. 1. General considerations. 2. Practical application to corrections. 3. Materials for the yearly period. *a.* Variation of the barometric heights in the yearly period. *b.* Comparison of the curves. *c.* Corrections for the months. 4. Materials for the daily period. *a.* Variation of the barometric heights in the daily period. *b.* Comparison of the curves. 5. General table of corrections.

III. Examples. 1. Amarkántak, in Málva, Central India. 2. Musták pass, in Bálti, Tibet

I. FORMULÆ EMPLOYED.

For the calculation of our barometric heights we use the formulæ which have been extended from Gauss' tables by M. C. Dippe[1]. But as Dippe's tables are based on Réaumur, and give the resulting height in toises, we had, for one argument, viz. the sum of the temperatures of the air $(t + t')$, to reduce the table to Fahrenheit and centigrade measure, and to alter the argument for the correction with the decrease of gravity.

In accordance with Bessel's calculations, we have added a special correction for introducing the mean humidity *with its full value*. We had, however, to reduce Bessel's table (which is contained in "Schumacher's Astronomische Nachrichten", 1838, No. 356), to English measures, and to extend it, so as to make it available for extreme heights. All the tables required either for the barometrical or trigonometrical calculation of heights are given in full at the end of this part; they also contain the

[1] Gauss' tables, a re-calculation of La Place's original formulæ, are published in "Schumacher's Jahrbuch for 1836"; Dippe's tables, in the "Astronomische Nachrichten, No. 1056, November, 1856". The co-efficients used in these tables have been recently confirmed by the *theoretical* researches of Professor Crelle: Einige Bemerkungen uber die Theorie des Hohenmessens; Abhandlungen der Berliner Akademie, 1852.

barometric pressures corresponding to temperatures of boiling water, in English and French measures.[1]

The mean of the humidity[2] at the lower and upper station (the maximum humidity being 1) is to be multiplied with the corresponding number of the table No. 4, p. 77, the heading of one of which is "half the sum of the temperatures of the atmosphere" at the stations, and the other, "the relative height" between the two stations. The product thus obtained (always additive) is in English feet. An inspection of the table shows, that the numbers increase with height, moisture, and temperature, and that for tropical countries (on account of temperature), or for great relative heights, the value becomes a very appreciable element in the final determination.

The method employed by us for the calculation of our heights will best be seen from the examples, given pp. 62—64.

II. CORRECTIONS FOR PERIODIC CHANGES OF THE ELEMENTS.

The results of barometric determinations of height are still to be corrected for the periodic changes of the respective elements, and as we have to determine the absolute values of these disturbances, we meet with questions of a most complicated and difficult nature.

1. GENERAL CONSIDERATIONS.

If the observations for the pressure and temperature of the atmosphere at the two respective stations could be considered as representing, in their relation, *the true mean* along the direct ideal line connecting the two stations, the results of barometric observations would become independent of the yearly and daily period.

But that this is not the case, and that the heights obtained are affected by periodic variations, is confirmed by theory, as well as by the results deduced. The amount of these variations we propose to analyse in the subsequent pages.

[1] A valuable collection of various tables is also contained in Guyot's "Tables, meteorological and physical, prepared for the Smithsonian Institution." Second edition, Washington, 1858.

[2] The humidity has been calculated from the simultaneous readings of the dry and wet bulb thermometer, as first proposed by August. Since his discovery, minute tables have been calculated and published by Regnault, Glaisher, and others. Humidity — relative humidity, or degree of saturation — gives the proportion of the actual to the possible quantity of moisture in the atmosphere when completely saturated. The degree of complete saturation is occasionally represented by 100, a unit which we have adopted in the present volume.

Following the plan adopted in our analysis of barometric calculations in the Alps (published some years ago[1]), we shall begin with some theoretical considerations.

The equation for the calculation of heights by observations with the barometer is known to be of the form

$$z = a\,(1 + cT)\,\log\frac{B}{b} + \&c.,$$

where a and c are constants, B, b, the observations of the barometer at the lower and upper stations respectively, and T the arithmetical mean of the temperature at both stations, &c.

The variation of gravity, depending upon height and latitude, as well as the humidity of the atmosphere, having but comparatively small influence, we may, in order to obviate undue complication, consider z as depending upon T, B, b, only, viz.:

$$z = f\,(T,\ B,\ b,\ \&c.).$$

Then we have:

$$\Delta z = \frac{df}{dT}\cdot\Delta T + \frac{df}{dB}\cdot\Delta B + \frac{df}{db}\,\Delta b + \&c.$$

By forming the partial differential quotients, we get

$$\frac{dz}{dT}\cdot\Delta T = ac\,\log\frac{B}{b}\,\Delta T \qquad (1)$$

$$\frac{dz}{dB}\cdot\Delta B = a(1+cT)\frac{m}{B}\cdot\Delta B \qquad (2)$$

$$\frac{dz}{db}\cdot\Delta b = -a(1+cT)\frac{m}{b}\cdot\Delta b \qquad (3).$$

therefore

$$\Delta z = ac\,\log\frac{B}{b} + ma\,(1+cT)\left(\frac{\Delta B}{B} - \frac{\Delta b}{B}\right).$$

Assuming that the barometric pressure has been correctly read at both stations, viz. at the place whose height is to be calculated and the other corresponding one, we find from the equations 2 and 3, that if $\Delta B = \Delta b$,

$$\frac{dz}{dB}\cdot\Delta B : \frac{dz}{db}\,\Delta b = b : B.$$

Therefore, a deviation from the regular period in the daily variation of the atmospheric pressure exercises a greater influence if the corresponding station (the starting point) be the higher one, than if it be the lower. But this result will be seen, for all practical purposes, to be of very little importance, when we consider, that the periodic variations of the atmospheric pressure, as also the other irregular

[1] See H. de Schlagintweit's memoir on this subject. in "Neue Untersuchungen über die Alpen", Leipzig, 1854, pp. 399 et seq.

variations, are generally greater for the station of less elevation. Taking this latter as the starting point, there is, however, every probability of the irregularities, so far as they enter into the calculation, being sensibly reduced.

The absolute error of the resulting height is proportional to the error in the barometric pressure at the corresponding station; the determination of this element, therefore, may be considered as amply satisfying the condition of accuracy, when the instruments are in good order, and their readings carefully taken.

The conditions depending on temperature, however, are much less favourable. The equation No. 1 is of such a form, that the influences introduced by errors of the temperature (= T) can be appreciated. If (for abbreviation) we make $a \log \frac{B}{b} = z'$ = the approximate difference of the resulting height, we then get $\Delta z = c z' \Delta T$.

The absolute error, therefore, is

1) directly proportional to the error in the temperature, and

2) increases with the relative height between the two stations.

2. PRACTICAL APPLICATION TO CORRECTIONS.

Now, what we call T, or the arithmetical mean between the temperatures of the two stations, is, in precise terms, the mean of the temperatures of the air near the surface of the ground at the place of observation. Its difference from the temperature which we should obtain, if it were possible properly to define the real mean temperature of the free air *along the oblique line* connecting the two stations, becomes the principal source of error in the calculation of barometric heights, and this error will vary both with the seasons and with the daily thermic period.

In deducing corrections for practical purposes, we depend chiefly upon the thermic element. The yearly and the daily period we shall consider separately, first establishing the corrections for the respective months, then for the hours within the months.

As the unit to which the deviations are to be referred, we may take either the difference of level established by trigonometric operations, or for small distances, when both stations are included within the same type of climate, the mean of the 12 months. The differences thus obtained will also include, as an immediate consequence of these considerations, the periodic deviations depending on inequality of atmospheric pressure. But, as has been said before, the latter are comparatively very small.

3. MATERIALS FOR THE YEARLY PERIOD.

The following groups contain the materials which we were able to collect for the yearly period:

1. AMBÁLA — ÁGRA, representing the climate of Hindostán and Central India for minor elevations. The data are taken from the observations for the year 1854, as contained in our manuscript books. Previous to our examining the instruments and setting them in order for our corresponding observations in 1855, their correction amounted to a value, corresponding to a mean difference of + 51 feet, which has been already applied to the results presented.[1]

2. MAHABALÉSHVAR — BOMBAY, combining the sea shore and the Dékhan. For want of a closer coincidence in point of time, we were obliged to combine, for Mahabaléshvar, the barometer for 1828-9, and a mean temperature of nine years (1835—43), with the values for 1843 at Bombay. This year we selected both from its approximation to the Mahabaléshvar period, and as presenting, in its temperature and pressure, but a trifling divergence from the true mean. The data are taken from Colonel Sykes' important memoir on Indian meteorology.[2] The locality where the barometer had been observed at Mahabaléshvar is unknown.

3. DODABÉTTA — MADRAS, for great elevations in Southern India, from observations for 1850 in the records communicated to us by the Madras Government. In this group the variation for the different months is well shown, but the mean yearly result is decidedly too low, chiefly on account of the errors of the instruments not being sufficiently well known. These errors amount to a value of + 83 feet, which have been applied to the final heights.

4. DARJÍLING — CÁLCUTTA, for nine months. This combination also may be expected to be unfavourable, an account of discrepancies of the meteorological character; nevertheless, the amount of error is only a small one.

The following tables contain, besides the data used for calculation, the results obtained and the monthly variation of difference. The general results are also repre-

[1] Though the stations of series of thermometric observations (which will appear in the Vols. on Meteorology) are very numerous, yet it was not easy to find long series of exact barometric observations, indeed it was hardly possible to procure them, even when all the arrangements that seemed necessary had been made. In the three years' observations for these two stations, the series for 1854 is the one most complete.

[2] Philosophical Transactions, 1850.

sented in curves on plate No. 1. For the yearly, as well as for the daily period, we have used for the curves throughout the same unit for the vertical co-ordinates, viz. $^1/_{600}$ of the actual difference, or the scale of 1 inch to 50 feet. This, we think, will materially facilitate the comparison of the curves.

a. VARIATION OF THE BAROMETRIC HEIGHTS IN THE YEARLY PERIOD.

1. Ambála—Ágra.

Absolute height of Ambála: 1,026 feet.

Loc. *Cistern of late Dr. Tritton's barometer.*

1854.	Ambála.		Ágra.		Absolute Height.	Var.
	Barom.	Air.	Barom.	Air.		
	Inches.	°	Inches.	°	Feet.	Feet.
Jan.	29·140	60·9	29·470	64·4	1,024	- 2
Feb.	29·121	61·2	29·412	65 1	988	— 38
March	29 024	74 6	29·344	77·6	1,024	— 2
April	28·820	89 9	29·128	91·4	1,024	— 2
May	28·799	93·9	29·114	97·0	1,033	+ 7
June	28·624	95·7	28·940	95 4	1,037	+ 11
July	28 663	88 8	28 958	88 1	1,007	— 19
Aug.	28·662	87·2	28·983	85·8	1,036	+ 19
Sept.	28 769	84 7	29 095	86·1	1,038	+ 12
Oct.	28·980	73·0	29 307	80 3	1,032	+ 6
Nov.	29 112	66 9	29·460	70·5	1,045	+ 19
Dec.	29·165	58·2	29·499	62 8	1,025	— 1
				Mean:	1,026	

2. Mahabaléshvar—Bombay.

Absolute height of Mahabaléshvar: 4,350 feet.

Loc. *Cistern of the barometer.*

	Mahabaléshvar.		Bombay.		Mean Hum.	Absolute Height.	Var.
	Barom.	Air.	Barom.	Air.			
	Inches.	°	Inches.	°		Feet.	Feet.
Jan.	25·737	69 2	29·923	76·3	65	4,382	+ 32
Feb.	25·765	69·6	29 882	78·0	60	4,319	— 31
March	25·688	75·3	29·839	79·7	60	4,399	+ 49
April	25·667	78 1	29·813	84·2	61	4,434	+ 84
May	25·643	76·4	29·662	85·9	70	4,319	— 31
June	25·664	70·7	29·654	85·3	83	4,330	— 20
July	25·600	68·8	29·661	82·0	89	4,320	— 30
Aug.	25·647	67·4	29·730	81·2	88	4,320	— 30
Sept.	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct.	25 810	68 2	29 845	82·2	74	4,255	— 95
Nov.	25·733	67·3	29·887	80·3	67	4,365	+ 15
Dec.	25·739	66 9	29·961	76·7	67	4,408	+ 58
					Mean:	4,350	

3. Dodabétta—Madras.

Absolute height of Dodabétta: 8,640 feet.

Loc. *Cistern of the barometer.*

1854.	Dodabétta.		Madras.		Mean Hum.	Absolute Height.	Var.
	Barom.	Air.	Barom.	Air.			
	Inches.	°	Inches.	°		Feet.	Feet.
Jan.	22 134	50·7	29 914	77·2	73	8,642	+ 2
Feb.	22 182	50·0	29 977	78·9	74	8,642	+ 2
March	22 207	53 8	29 887	84 1	67	8,613	— 27
April	22 168	55·5	29 837	86·0	70	8,655	+ 15
May	22·149	57·4	29 749	88·3	69	8,635	— 5
June	22 076	53·0	29 672	88·9	62	8,613	— 27
July	22·072	52 8	29·703	88·0	64	8,639	— 1
Aug.	22·109	53 5	29 760	86 5	71	8,643	+ 3
Sept.	22 111	52 0	29 775	84 8	71	8,623	— 17
Oct.	22·128	53·6	29 821	83 8	77	8,657	+ 17
Nov.	22 142	51 9	29·891	79 0	77	8,643	+ 3
Dec.	22·172	51·4	29 995	76 9	75	8,675	+ 35
					Mean:	8,640	

4. Darjíling—Calcutta.

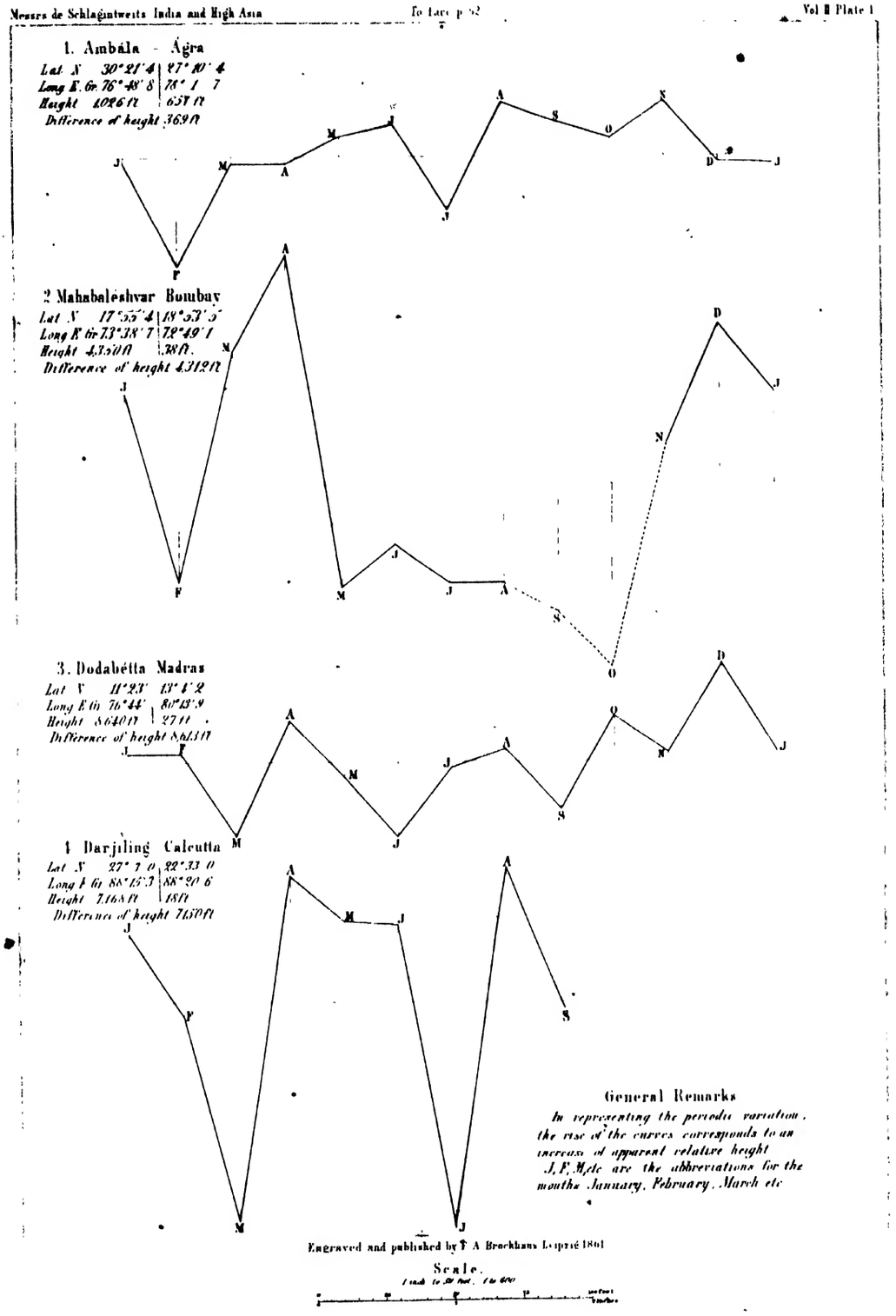
Absolute height of Darjíling: 7,168 feet.

Loc. *Cistern of Dr. Whitecombe's barometer.*

	Darjíling.		Calcutta.		Mean Hum.	Absolute Height.	Var.
	Barom.	Air.	Barom.	Air.			
	Inches.	°	Inches.	°		Feet.	Feet.
Jan.	23·142	39·4	30·017	66·5	80	7,199	+ 25
Feb.	23 220	41·9	30·005	72·5	83	7,167	— 7
March	23·216	48·6	29·805	79·3	84	7,095	- 79
April	23 127	52·3	29·764	82 3	83	7,220	+ 46
May	23·119	58·1	29·649	85·9	88	7,202	+ 28
June	23 057	59 7	29·556	85·6	91	7,201	+ 27
July	23·096	60·2	29·517	82·3	92	7,091	— 83
Aug.	23·047	60·7	29·571	83·7	91	7,222	+ 48
Sept.	23·153	58·4	29·690	82·3	92	7,173	— 1
					Mean:	7,174	

VARIATION OF THE BAROMETRIC HEIGHTS IN THE YEARLY PERIOD.

Messrs de Schlagintweits India and High Asia — To face p. 52 — Vol II Plate 1



Engraved and published by F. A. Brockhaus Leipzig 1861

Scale.
1 inch to 50 feet, 1 to 600

b. COMPARISON OF THE CURVES.

We now proceed to an analysis of the curves in reference to the variations of the resulting heights. Also for meteorology in general such considerations are not without interest. As a rule, the variations of the barometer are at both stations in the same direction, and of an amount slightly differing from one period to another. The same is the case, more or less, with the wind and the temperature near the surface. The results represented in plates 1 and 2, will, therefore, furnish useful data for forming a correct idea of the temperature of the *free* atmosphere.

In Europe, and in moderate zones generally, the character of the climate varies much more rapidly in proportion to distance, and considerations like the following for the monthly variation of the barometric heights must necessarily be confined to the comparison of localities much less distant from each other.

Irregular as the curves may at first appear, they show many coincidences in their general character, when the respective climates to which they belong, are taken into consideration.

a. In all of them February, or March, is considerably too low, or, which is the same, the temperature of the soil is lower, even during the gradual approach of the hot season, than that of the atmosphere.

b. The curve attains its first maximum a short time before the setting in of the rains. During the whole of this period, the surface of the earth, and the strata of the atmosphere immediately above it, are in excess of temperature as compared to the free atmosphere.

c. The rainy season is characterised by a very steep and rapid descent of the curve.[1] This deflection results from the lower strata of the atmosphere being comparatively more cooled by rains than the upper, in consequence of the evaporation,

[1] We had also calculated in full detail Ágra — Calcutta, and Ágra — Bombay, both of which show with considerable distinctness the depression of the curve in July, after the setting in of the rains; but it is evident, from the great distance between them, and more particularly from the marked difference in the direction of the wind, that they could not be connected with the question before us. Though the absolute height of Ágra is 657 feet, we get from Calcutta, as maximum, in June, 613 feet, as minimum, in December, 504 feet. Ágra, combined with Bombay, gives as maximum, in June, 742 feet, as minimum, in December, 416 feet. These numbers are deduced from the monthly means of barometers and thermometers, &c., for 1854. Care must be taken not to combine Himálayan stations with those in the plains of India. As an example of incorrect combination, we instance Darjiling — Calcutta; Símla also, as calculated from Ambála, gives a decidedly inaccurate result for the relative height.

which takes place chiefly on the surface of the ground and not in the free atmosphere.[1]

After the ground is thoroughly saturated with moisture, there is an analogous rise of the curves, which, in those parts where the rain is not excessive (as in Hindostán), gradually merges into the autumnal division of the curves. But in the regions of excessive rain, the period of the drying up of the ground corresponds to another depression of the curve.

d. In autumn again, during the first approach of the cool season, there is another decided rise, chiefly in connection with the uninterrupted action of the sun through a cloudless sky on the surface of the ground.[2]

c. CORRECTIONS FOR THE MONTHS.

As resulting corrections for the months, we obtain the following: *a.* In Southern India in general the correction for April, October, November, December, comes to $-0{\cdot}003$ of the relative height; for March and June to $+0{\cdot}003$, while it may be altogether disregarded for the other months. *b.* For the rest of India, including the Himálaya, it may be considered as being, in February and during the height of the rains, $+0{\cdot}002$; during the hottest period of the year, just before the beginning of the rains, and for October, November, and December, $-0{\cdot}0015$. *c.* The same corrections as those of *b* were applied to Himálayan stations, situated within the region of periodical rain, but for Tibetan stations a depression contemporaneous to the period of Himálayan rains seems entirely wanting. The absolute height of Leh, for instance, is 11,532 feet.

It becomes:

1856.	Calculated from Massúri.	Calculated from Símla.
July	11,528	11,541
August	11,558	11,527
September	11,513	11,523

[1] See our observations on the *temperature* of rain, in the meteorological parts of our publications.

[2] In the Alps the autumn is one of the best seasons for barometric observations; a correction for this season is inappreciable

4. MATERIALS FOR THE DAILY PERIOD.

The variation of the resulting height with the daily period is very considerable for climates having a large daily range of temperature. We had, however, greater facilities for defining the amount of these variations than in the calculation of the yearly period. From a numerous collection of such observations we select six series, which will be quite sufficient for deducing the corrections required. We of course define the variation within the daily period as the difference of the respective hour, not from the yearly or corrected mean, but from the monthly mean of the 24 hours. At all the different stations, the hours of direct observations included the period from 6^h A.M. to 10^h P.M. The respective elements for the night (at midnight, 2^h A.M., and 4^h A.M.) had to be calculated by a formula of interpolation, which will be used, and communicated in detail, in the volume treating of the special objects of meteorology.[1]

Though considerably increasing the labour of calculation, we found it the better plan first to deduce by interpolation the respective meteorological elements, and then to proceed with calculating the height for the hours of the night, as we give them in the curves.

We present the following series:

A. FOR INDIA.

1. AMBÁLA — ÁGRA, mean for the month of December, 1854. These curves are intended as the type of Hindostán.

2. PÚNA — BOMBAY, from Adolphe's observations taken from December 29, 1854, to January 5, 1855, near the dāk bángalo. To reduce the results to the door-way of the dāk bángalo, a local correction of — 15 feet had to be applied.

3. KĂLÁDGHI — BOMBAY, from our observations, January 17—20, 1855. They refer to the door-way of the travellers' bángalo.

4. SÁGER — ÁGRA, from Robert's observations, December 14 — 18, 1855, referred to the door-way of the travellers' bángalo. The local correction of — 5 feet is applied to the results.

[1] For the present we refer to our "Neue Untersuchungen uber die Alpen, p. 384, *et seq.*

B. FOR THE HIMÁLAYA.

5. FĂLÚT — DARJÍLING, from Hermann's observations taken from May 26 to June 10, 1855, during the height of the rainy season. By trigonometric measurement, the barometer was found to be put up 204 feet below the summit of Fălút, for which we adopt the value of the G. T. S. = 12,042 feet. The cistern of the barometer was therefore 11,838 feet above the level of the sea.

6. LEH — MĂSSÚRI, and LEH — SÍMLA, for three months, July, August, and September, 1856, from observations by Hermann, Robert, and Hărkíshen.

The curves, on the same scale for the vertical co-ordinates as those of the yearly period, (see p. 52) are collected in plate No. 2, and represent the entire daily period.

a. VARIATION OF THE BAROMETRIC HEIGHTS IN THE DAILY PERIOD.

1. Ambála — Ágra.

Absolute height of Ambála: 1,026 feet.
Loc. *Cistern of late Dr. Tritton's barometer.*
See p. 52.

1854. Dec.	Ambála. Barom.	Ambála. Air.	Ágra. Barom.	Ágra. Air.	Ambála. Absolute Height.	Var.
	Inches.	°	Inches.	°	Feet.	Feet.
Midnight	29 142	46·8	29·536	59.2	1,026	− 11
1h A.M.	29 127	45 3	29 528	57 7	1,032	— 5
2 „	29 115	43 3	29·516	56 1	1,030	— 7
3 „	29 099	42·8	29 497	55 2	1,027	— 10
4 „	29·095	42 1	29 489	54·5	1,022	- 15
5 „	29 111	11 2	29 504	54 1	1,021	- 16
6 „	29 119	40 8	29 516	54 0	1,025	— 12
7 „	29·138	41 0	29 536	55 4	1,023	— 14
8 „	29 154	47 3	29 552	59 0	1,031	— 6
9 „	29 170	53 6	29·607	62 4	1,072	+ 35
10 „	29 186	59 9	29 603	61 9	1,053	+ 16
11 „	29 162	63 7	29·579	67 1	1,058	+ 21
Noon	29 142	67 3	29·556	69·8	1,058	+ 21
1h P.M.	29 123	68 2	29 532	71 2	1,055	+ 18
2 „	29 099	69 1	29·512	72·5	1,056	+ 19
3 „	29·095	69·1	29 497	72 9	1,048	+ 11
4 „	29 087	67 6	29 485	73 4	1,045	+ 8
5 „	29 087	63 3	29 493	72·3	1,049	+ 12
6 „	29 107	60 8	29 497	68 5	1,032	— 5
7 „	29 123	59·2	29 504	66 9	1,022	— 15
8 „	29 138	57·0	29 516	65·7	1,017	— 20
9 „	29 146	54 3	29 536	64 4	1,027	— 10
10 „	29 166	51·4	29·564	62 8	1,032	— 5
11 „	29 150	48 4	29 548	60 8	1,030	— 7
				Mean:	1,037	

2. Púna — Bombay.

As absolute height of Púna we adopt: 1,784 feet, being the mean of the hourly observations.
Loc. *Dák bángalo.*

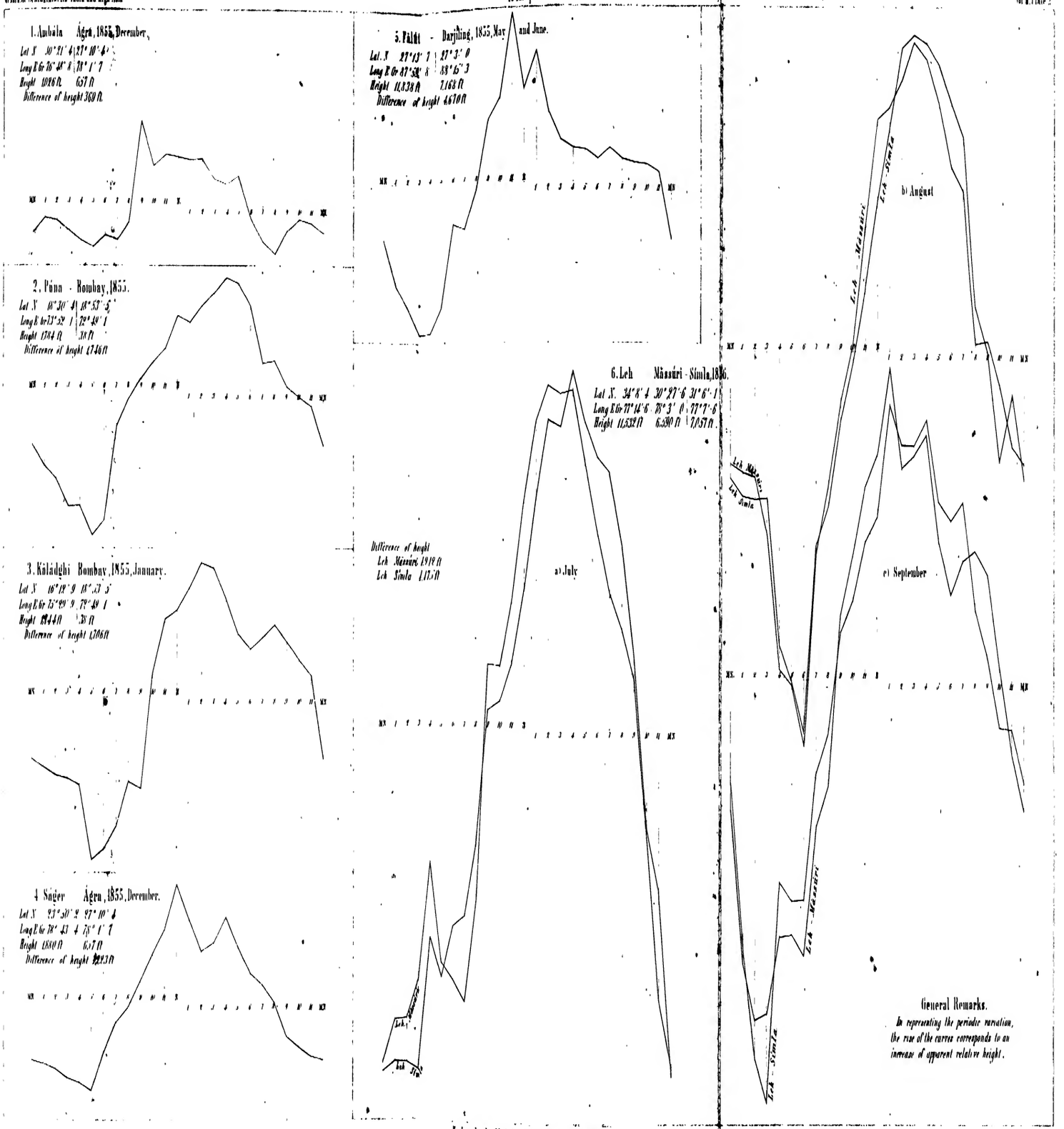
1854, Dec. 29, to 1855, Jan. 5.	Púna. Barom.	Púna. Air.	Bombay. Barom.	Bombay. Air.	Púna. Absolute Height.	Var.
	Inches.	°	Inches.	°	Feet.	Feet.
Midnight	28 106	62 8	29.880	75·0	1,762	— 22
1h A.M.	28·110	62·0	29·878	74·0	1,753	— 31
2 „	28·106	61·4	29 870	73·6	1,748	— 36
3 „	28·102	59 9	29·860	72·6	1,737	— 47
4 „	27·997	59 2	29·748	73·0	1,737	— 47
5 „	27 992	58 0	29·735	72 2	1,726	— 58
6 „	28·056	57·8	29.810	71 4	1,731	— 53
7 „	28·100	58 1	29·897	71·2	1,769	— 15
8 „	28·126	60·0	29·929	73·5	1,781	— 3
9 „	28·142	62·9	29·947	76·2	1,790	+ 6
10 „	28·141	64·6	29·945	77 3	1,795	+ 11
11 „	28 134	68·2	29·932	79·0	1,800	+ 16
Noon	28 106	71·0	29·908	81·0	1,814	+ 30
1h P.M.	28 090	73·9	29·880	82·3	1,811	+ 27
2 „	28 074	75·0	29·864	84 0	1,818	+ 34
3 „	28·060	78 9	29 848	84·4	1,823	+ 39
4 „	28·055	78·8	29·850	84·2	1,830	+ 46
5 „	28·048	77 9	29·847	81·4	1,828	+ 44
6 „	28 051	75·2	29·850	78·3	1,817	+ 33
7 „	28·072	72 0	29·869	76·3	1,795	+ 11
8 „	28·084	68·8	29·881	75·0	1,796	+ 12
9 „	28·114	64·8	29 907	76·4	1,785	+ 1
10 „	28 113	64·4	29·905	76·4	1,783	— 1
11 „	28 111	63·0	29 901	75·8	1,778	— 6
				Mean:	1,784	

Messrs. de Schlagintweits' India and High Asia

To face p. 56

Vol. II. Plate 2

VARIATION OF THE BAROMETRIC HEIGHTS IN THE DAILY PERIOD.



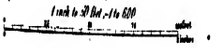
General Remarks.

In representing the periodic variation, the rise of the curves corresponds to an increase of apparent relative height.

Engraved and published by F. A. Brockhaus, Leipzig, 1861.

Scale.

1 inch to 50 feet = 1 to 600



3. Kăláḍghi — Bombay.

As absolute height of Kăláḍghi we adopt: 1,744 feet, being the mean of the hourly Observations.
Loc. *Dāk bángalo.*

1855, Jan. 17 to 20.	Kăláḍghi. Barom.	Kăláḍghi. Air.	Bombay. Barom.	Bombay. Air.	Kăláḍghi. Absolute Height.	Var.
	Inches.	°	Inches.	°	Feet.	Feet.
Midnight	28·196	64·4	29·926	67·4	1,719	— 25
1h A.M.	28·190	63·0	29·920	67·0	1,716	+ 28
2 „	28 174	61·9	29·902	66 0	1,712	— 32
3 „	28 163	60·0	29·890	67 5	1,711	— 33
4 „	28·152	59·2	29·879	66·0	1,708	— 36
5 „	28·187	56·8	29·892	64 3	1,678	— 66
6 „	28·200	56·0	29·909	65 1	1,682	— 62
7 „	28·229	57·6	29·945	66·4	1,691	— 53
8 „	28·246	63·6	29·967	68·6	1,709	— 35
9 „	28·272	69·6	29·977	71 6	1,707	— 37
10 „	28·252	77·9	29·984	74·3	1,753	+ 9
11 „	28·218	79·1	29·962	77·2	1,774	+ 30
Noon	28·198	80·3	29·936	81·0	1,778	+ 34
1 „	28·175	81·6	29·914	83·4	1,787	+ 43
2 „	28·150	82·9	29·890	86·0	1,797	+ 53
3 „	28·134	84·2	29 871	85·2	1,795	+ 51
4 „	28·130	82·7	29 863	81 6	1,783	+ 39
5 „	28 136	80·0	29·864	79·0	1,769	+ 25
6 „	28·140	79·1	29 869	75 4	1,762	+ 18
7 „	28·142	78·0	29·882	74·2	1,768	+ 24
8 „	28·150	76·2	29·900	73·4	1,772	+ 28
9 „	28·152	72·2	29 902	73 2	1,765	+ 21
10 „	28·158	70·0	29·907	72 0	1,758	+ 14
11 „	28 156	68·9	29 904	70 7	1,752	+ 8
				Mean:	1,744	

4. Ságer — Ágra.

As absolute height of Ságer we adopt: 1,880 feet, being the mean of the hourly Observations.
Loc. *Dāk bángalo.*

1855, Dec. 14 to 18.	Ságer. Barom.	Ságer. Air.	Ágra. Barom.	Ágra. Air.	Ságer. Absolute Height.	Var.
	Inches.	°	Inches.	°	Feet	Feet
Midnight	28 267	56 9	29 523	57 8	1,857	— 23
1h A.M.	28 260	55 4	29 516	57·0	1,855	— 25
2 „	28 252	54 3	29 509	55 9	1,853	— 27
3 „	28·248	54 1	29 501	54 8	1,850	— 30
4 „	28 239	53 6	29 495	53 2	1.848	— 32
5 „	28 237	51 2	29 493	52 3	1.841	— 36
6 „	28 237	51 0	29 510	52 0	1,859	— 21
7 „	28 233	57·5	29 507	54 1	1,871	9
8 „	28 252	60 5	29 528	56 1	1,878	+ 2
9 „	28 292	63 5	29 571	59 1	1,888	+ 8
10 „	28·282	69 0	29 559	63 4	1,899	+ 19
11 „	28 272	74 5	29 548	67·3	1,910	+ 30
Noon	28·245	78 5	29 528	70 2	1,927	+ 47
1 „	28 232	79 5	29 497	71·6	1,914	+ 34
2 „	28 220	79·5	29·469	73 2	1,900	+ 20
3 „	28 215	79 0	29 469	73 1	1,901	+ 21
4 „	28 202	78 0	29 168	71 9	1,911	+ 31
5 „	28·204	72 5	29 170	68 0	1,902	+ 22
6 „	28·205	66 6	29 171	65 6	1,891	+ 11
7 „	28 218	65 0	29·184	64 1	1,887	+ 7
8 „	28 232	60 5	29 498	63 6	1,880	+ 0
9 „	28·246	59 7	29 502	61 8	1,866	— 14
10 „	28 260	58 8	29 516	59 6	1,862	— 18
11 „	28 276	58 0	29 532	58 7	1,858	— 22
				Mean:	1,880	

5. Falút — Darjiling.

Absolute height of Barometer's Cistern at Falút 11,838 feet (see p. 56).

1855, May 26 to June 10.	Fálút. Barom.	Fálút. Air.	Darjíling. Barom.	Darjíling. Air.	Mean Hum.	Absolute Height.	Var.
	Inches.	°	Inches.	°		Feet	Feet
Midnight	19·509	43·5	23 091	58·2	96	11,801	— 23
1h A.M.	19·509	43·5	23 075	58·2	96	11,783	— 41
2 „	19 504	42·8	23·064	58·1	96	11,774	— 50
3 „	19·512	42·6	23·065	57·9	96	11,762	— 62
4 „	19·512	42 6	23·067	57 9	96	11,763	— 61
5 „	19·512	43·0	23·074	57·9	96	11,774	— 50
6 „	19 501	44·6	23·081	58 2	96	11,808	— 16
7 „	19·520	45·9	23·094	58·7	96	11,807	— 17
8 „	19·528	47 7	23·105	59·3	96	11,823	— 1
9 „	19·528	49 8	23·116	59·9	96	11,850	+ 26
10 „	19·528	50·4	23 118	60·6	96	11,859	+ 35
11 „	19·508	51·6	23·115	61·2	96	11,893	+ 69
Noon	19·524	52·0	23·105	61·6	96	11,862	+ 38

1855, May 26 to June 10.	Fálút. Barom.	Fálút. Air.	Darjíling. Barom.	Darjíling. Air.	Mean Hum.	Absolute Height.	Var.
	Inches.	°	Inches.	°		Feet	Feet
1h P.M.	19·516	51 6	23 109	61 9	96	11,878	+ 54
2 „	19·501	50 4	23 074	61 9	96	11,852	+ 28
3 „	19 493	49 6	23 060	61·9	96	11,841	+ 17
4 „	19·489	48 7	23 055	61 8	96	11,836	+ 12
5 „	19 485	17·8	23 056	61 5	96	11,836	+ 12
6 „	19·489	46 9	23 062	61 4	96	11,832	+ 8
7 „	19·189	46·0	23·072	61 1	96	11,838	+ 14
8 „	19 497	45 5	23 082	60·4	96	11,833	+ 9
9 „	19 501	44 8	23 096	59 0	96	11,831	+ 7
10 „	19 505	44 4	23 104	58 5	96	11,830	+ 6
11 „	19 505	44·1	23·103	58 3	96	11,826	+ 2
					Mean:	11,824	

6. Leh — Măssúri, and Leh — Símla.

Absolute height of Leh = Mean of all Observations = 11,532 feet.

1856, July.	Leh.		Massúri.		Símla.		Mean Hum. Leh and		Absoluto Height of Leh from		Variation. Leh from	
	Barom.	Air.	Barom.	Air.	Barom.	Air.	Mäs-súri.	Símla.	Măssúri.	Símla.	Măssúri.	Símla.
	Inches	°	Inches.	°	Inches.	°			Feet.	Feet.	Feet.	Feet.
Midnight	19 785	62·8	23 449	66 2	23·075	64·8	60	70	11,393	11,403	— 135	— 138
1h A.M.	19 757	61·2	23 438	66·2	23·052	64 6	60	71	11,411	11,406	— 117	— 135
2 „	19 729	60·3	23 410	66·0	23·024	64 4	60	72	11,411	11,406	— 117	— 135
3 „	19 702	59 0	23 398	65 5	22 997	63·7	60	73	11,427	11,403	— 101	— 138
4 „	19·659	57·9	23·394	65 1	23 001	62·2	60	71	11,474	11,456	— 54	— 85
5 „	19·682	56 3	23·398	64 0	23·021	62 4	60	71	11,433	11,440	— 95	— 101
6 „	19 690	56 8	23 398	64·6	23 044	62 8	60	75	11,427	11,461	— 101	— 80
7 „	19 702	59 5	23 390	65 7	23 048	63 7	60	73	11,420	11,466	— 108	— 75
8 „	19 702	63 1	23 406	65·5	23 052	64 8	60	68	11,459	11,495	— 69	— 46
9 „	19 682	67·1	23 442	66·0	23·056	65 7	60	64	11,554	11,550	+ 26	+ 9
10 „	19·691	69 4	23·442	66 6	23 060	66 6	60	60	11,554	11,553	+ 26	+ 12
11 „	19·687	72 1	23·442	67 1	23 052	66 9	60	55	11,580	11,567	+ 52	+ 26
Noon	19 679	75 9	23·416	67 3	23·052	67 3	60	53	11,621	11,598	+ 93	+ 57
1h P.M.	19 651	76·5	23 434	67·6	23 044	67 8	60	52	11,653	11,635	+ 125	+ 94
2 „	19 639	79 3	23 418	67 8	23 011	68 4	60	49	11,667	11,667	+ 139	+ 126
3 „	19 631	77 4	23 414	67 8	23 036	69 1	60	50	11,663	11,663	+ 135	+ 122
4 „	19 615	76·6	23 402	67 6	23 036	69 6	60	52	11,666	11,686	+ 138	+ 145
5 „	19·615	73·2	23 394	67 5	23 036	68 7	60	54	11,636	11,666	+ 108	+ 125
6 „	19 615	70 2	23 386	67 3	23 040	67·6	60	57	11,608	11,651	+ 80	+ 110
7 „	19 615	68·2	23 378	66·7	23 011	67 1	60	61	11,584	11,644	+ 56	+ 103
8 „	19 623	65·7	23 386	66·6	23·011	66 4	60	63	11,568	11,616	+ 40	+ 75
9 „	19 655	64 9	23 410	66 6	23·048	65 8	60	65	11,548	11,570	+ 20	+ 29
10 „	19 698	63 9	23 418	66 4	23 048	65 1	60	68	11,487	11,502	— 41	— 39
11 „	19 719	63 3	23 426	66 2	23 091	64·9	60	70	11,420	11,477	— 108	— 64
								Mean:	11,528	11,541		
August.												
Midnight	19 785	61 5	23 583	59 5	23 154	61 3	64	72	11,513	11,476	— 45	— 51
1h A.M	19 785	61 3	23·583	59 2	23 150	61 2	64	72	11,510	11,469	48	58
2 „	19 777	60 9	23 575	58·8	23 142	60 9	64	73	11,508	11,468	— 50	59
3 „	19 773	59 9	23 567	58 5	23·142	60·8	64	74	11,496	11,468	— 62	— 59
4 „	19 773	58 3	23·520	58 3	23 103	60 1	64	74	11,431	11,410	— 127	— 117
5 „	19 785	57 4	23·536	57 9	23 107	60 3	64	75	11,421	11,394	— 131	— 133
6 „	19 808	57 7	23 540	58 1	23 115	60 6	64	75	11,400	11,375	— 158	— 152
7 „	19·769	60 1	23 540	59 9	23 119	61 3	64	71	11,478	11,450	— 80	77
8 „	19 773	63 1	23·544	61 9	23 123	62 1	64	72	11,504	11,465	— 54	— 62
9 „	19 773	67 3	23 541	63·9	23·131	62 8	64	70	11,538	11,500	20	— 27
10 „	19 765	68·2	23 548	64 4	23·134	63·5	64	68	11,561	11,523	+ 3	— 4
11 „	19 749	70 0	23 556	61 8	23 131	63 9	64	66	11,606	11,552	+ 48	+ 25
Noon	19 733	73 0	23 556	65 3	23 127	64 4	64	64	11,650	11,588	+ 92	+ 61
1h P.M.	19 710	73 1	23 532	65·5	23·123	61 8	64	62	11,656	11,617	+ 98	+ 90
2 „	19 690	74·3	23 512	65 5	23·119	65 3	64	61	11,667	11,649	+ 109	+ 122
3 „	19 675	71 3	23 508	65 3	23 111	63 7	64	61	11,683	11,654	+ 125	+ 127
4 „	19 667	73 0	23 500	64·9	23 099	64 9	64	61	11,675	11,650	+ 117	+ 123
5 „	19 667	71 2	23·496	64 6	23 103	64 0	64	61	11,658	11,642	+ 100	+ 115
6 „	19 671	69 3	23·492	64 2	23 107	63 3	64	63	11,633	11,627	+ 75	+ 100
7 „	19 682	69 1	23 501	62 6	23 111	63 1	64	60	11,623	11,613	+ 65	+ 86
8 „	19 714	64·6	23 520	61·0	23 111	63 0	64	66	11,562	11,546	+ 4	+ 19
9 „	19 729	64 4	23 540	61 0	23 115	62 6	64	68	11,563	11,527	+ 5	+ 0
10 „	19 745	60 3	23 552	63 3	23 115	62 2	64	70	11,544	11,483	— 14	44
11 „	19 765	61 9	23 564	59 7	23 158	61 5	64	71	11,520	11,510	— 38	— 17
								Mean:	11,558	11,527		

1856, Sept.	Leh.		Mässúri.		Símla.		Mean Hum. Leh from		Absolute Height of Leh from		Variation. Leh from	
	Barom.	Air.	Barom.	Air.	Barom.	Air.	Mássúri.	Símla.	Mässuri.	Símla.	Mässúri.	Símla.
	Inches.	°	Inches.	°	Inches.	°			Feet.	Feet.	Feet	Feet.
Midnight	19·807	55·0	23·599	59·4	23·221	59 0	63	74	11,461	11,482	— 52	- 41
1h A.M.	19·802	54·3	23 544	59 2	23·163	58·6	64	74	11,399	11,415	— 114	— 108
2 „	19·795	52·9	23·524	58 8	23·127	57 9	65	74	11,376	11,372	— 137	— 151
3 „	19·795	51·6	23·532	58·8	23·119	57 4	64	73	11,379	11,353	— 134	— 170
4 „	19·780	50·9	23 544	58·6	23·181	57·0	64	73	11,410	11,443	— 103	80
5 „	19·786	50·5	23·556	58·3	23·185	56·8	63	72	11,411	11,436	— 102	— 87
6 „	19·792	49·1	23·564	57·9	23·189	57·2	62	72	11,403	11,427	— 110	96
7 „	19·765	51·3	23 567	57·9	23·198	58·5	62	70	11,455	11,486	— 58	- 37
8 „	19·765	52·9	23·560	60 8	23 197	59·7	61	70	11,471	11,503	— 42	- 20
9 „	19·765	55·2	23·595	63·5	23 214	61 2	60	68	11,540	11,543	+ 27	+ 20
10 „	19·759	57·2	23·595	64·4	23·205	62 6	60	66	11,564	11,557	+ 51	+ 34
11 „	19·752	59 2	23·595	65·3	23 205	63 3	60	64	11,590	11,580	+ 77	+ 57
Noon	19·750	61·0	23 591	66 2	23 201	64 0	60	63	11,604	11,590	+ 91	+ 67
1h P.M.	19·749	69·8	23 579	66 0	23·197	64 8	60	62	11,639	11,635	+ 126	+ 112
2 „	19·738	62·6	23·567	65·7	23·197	65·5	60	62	11,598	11,619	+ 85	+ 96
3 „	19·735	64·0	23·564	64·9	23·189	65 5	59	60	11,603	11,619	+ 90	+ 96
4 „	19·716	62 8	23 556	64·4	23·181	65 3	58	60	11,611	11,629	+ 98	+ 106
5 „	19·735	61·5	23·552	63·9	23·185	64·4	59	62	11,569	11,596	+ 56	+ 73
6 „	19 734	58·1	23·552	63·1	23·185	63·9	59	63	11,547	11,578	+ 34	+ 55
7 „	19·722	58 8	23·548	62·6	23 185	63·1	60	66	11,560	11,596	+ 47	+ 73
8 „	19·745	57·4	23·599	60·1	23·189	61·5	61	69	11,566	11,553	+ 53	+ 30
9 „	19·757	56·8	23 606	60 1	23 193	60 1	63	72	11,555	11,533	+ 42	+ 10
10 „	19·776	56 1	23·603	59 7	23·197	59·5	62	74	11,518	11,501	+ 5	19
11 „	19·796	55·9	23 599	59 5	23 221	59 2	60	75	11,483	11,503	— 30	— 20
								Mean:	11,513	11,523		

b. COMPARISON OF THE CURVES.

a. As a principal feature common to all these curves it must be mentioned, that they have a minimum at about one or two hours before sunrise, and a period of maximum from about 11^h A.M. to 5^h P.M. The form of this maximum, however, is irregular, and immediately dependant upon local circumstances; in several of the cases before us, there is a secondary depression at about 1^h or 2^h P.M. succeeded by a corresponding rise.

b. All the curves twice attain their mean value, once during the hours A.M., once during P.M.; but at the same time it is evident that the A.M. value is by far the better defined one, since for all curves and for all seasons it is included between 8^h and 10^h A.M.;[1] whilst the P.M. value presents itself between 4^h and 11^h P.M., and occurs altogether in a much more irregular part of the curve.

[1] Dr. G. de Liebig also in his detailed and most careful observations on the Parisnáth hill, April, 1856, has found $9^h\ 30^m$ A.M. to be the best hour. See Journal of the Asiatic Society, 1858, No. I.

c. In general the range of the daily period increases to a certain extent with the relative height;[1] but if we divide the differences by the relative height we find the results decrease a little, whilst the relative height increases.

d. For practical purposes it is advisable to take, if possible, the mean of 8^h, 9^h, and 10^h A.M., or the combination of 6^h A.M. with 3^h or 4^h P.M.

The great number of our observations (taken also, as they were, for meteorological purposes) allowed in general of a direct selection of the most favourable hours, but the necessities of travelling continually interfere with the observer's choice of the times best suited for the required measurements, and, in order to lessen the imperfections thus incidental to the mode of observation, we have given in the following tables an hourly correction, expressed in decimals of the relative heights, which was derived from the preceding observations. We made three groups: viz. for relative heights of 400 feet, of 1,000 feet, and 1,600 feet.

The results differ so little between the second and third groups, that, for values above 1,600 feet the co-efficient of the hourly correction seems to remain about the same. But this co-efficient is referred only to India and to those parts of High Asia including one, at least, of the combined stations, which is situated in the rainy district of the Himálaya, and of absolute height not exceeding 12,000 feet.[2]

e. For Himálayan and Tibetan stations, situated at great absolute heights, as well as in general for those in the dry parts of Tibet and Turkistán, the corrections depending on the daily variation had to be deduced for each district respectively. In these regions, also, we were enabled from the great number of our observations, to obtain well defined results for the hourly corrections. These have been given with the detail of the stations themselves, in order to avoid unnecessary complication in the general table.

[1] Compare similar researches in Europe: by Dr. Berghaus, in his "Grundriss der Geographie"; Bravais, Comptes rendus, 1850, p. 175; and our observations at the Vincent's Hütte. In Europe more especially, where the yearly variation is so considerable, it is very important to refer the difference of height, not to the yearly mean, but to the respective monthly means; otherwise, the hour giving the best result not only changes from month to month, but, what is more serious, we get for the month a resulting value depending upon hours, which, from their place in the daily period, give results much less strictly defined than others.

[2] The corrections are carried out to two decimals only, an accuracy quite sufficient, if we consider that isolated observations of one or two days must still remain affected by the error depending on non-periodical and irregular disturbances in pressure, temperature, wind, &c.

5. GENERAL TABLE OF CORRECTIONS,

for the Relative Height, depending on the Daily and Yearly Variations.

The relative height is to be corrected by multiplying it with the co-efficients for the respective month and hour, which are given in the following table.

At each of our observations we have added the amount of this correction, which for longer series is marked *Per. Corr.* = Periodic correction.

Corrections for the Hours.				Corrections for the Months		
Hour.	Relative Height.			Month.	Southern India.	India and the Outer Himálaya.
	400 Feet.	1,000 Feet.	1,600 Feet to 4,000 Feet.			
6h A.M.	+ 0·04	+ 0·03	+ 0·03	January	0·00	0·00
7 „	+ 0·03	+ 0·02	+ 0·02	February	0·00	+ 0·002
8 „	+ 0·02	+ 0·01	+ 0·01	March	+ 0·003	0·00
9 „	0·00	0·00	0·00	April	− 0·003	0·00
10 „	− 0·02	− 0·01	− 0·01	May	0·00	0·00
11 „	− 0·05	− 0·03	− 0·02	June	+ 0·003	+ 0·002
Noon	− 0·06	− 0·04	− 0·03	July	0·00	+ 0·002
1h P.M.	− 0·06	− 0·04	− 0·03	August	0·00	+ 0·002
2 „	− 0·05	− 0·04	− 0·03	September	0·00	0·00
3 „	− 0·04	− 0·03	− 0·03	October	− 0·003	− 0·0015
4 „	− 0·03	− 0·03	− 0·03	November	− 0·003	− 0·0015
5 „	− 0·02	− 0·02	− 0·03	December	− 0·003	− 0·0015
6 „	− 0·01	− 0·01	− 0·02			
7 „	+ 0·02	− 0·01	− 0·01	For Tíbet, Turkistán, and the northern Himálaya no monthly correction is required.		
8 „	+ 0·03	0·00	0·00			
9 „	+ 0·03	+ 0·01	0·00			
10 „	+ 0·03	+ 0·02	+ 0·01			

See p. 54.

For the calculation of the heights, which were ascertained barometrically by ourselves, we have chosen only such readings as, on account of the season and the hour, were the most favourable for the final result. A great many more observations, however, were taken, which will be treated in Vols IV. and V. of our publications (meteorology) under the special head of the variations of barometric pressure.

The detail required for the calculation we have shown as necessary in full, but for localities of secondary importance, ascertained occasionally by aneroids, the station only to which they are referred, and the resulting height, have been quoted.

III. EXAMPLES.

1. *A* = Amarkántak, Latitude N. 22° 38′, Longitude E. Green. 81° 46′, in Málva, Central India. Loc. *Mean height of plateau Vishnupúri.*

1856, Jan. 22, 7^{h} P.M. Observer: Robert. Thermo-barom. 7, Geissler.

Geographical Co-ordinates of the Corresponding Stations.

Corresponding Stations.	Latitude North.	Longitude East Green.	Height.
	° ′ ″	° ′ ″	Feet.
B. Ágra . . .	27 10 26	78 1 39	657
C. Aligárh . .	27 53 50	78 3 55	750

Hypsometric Observations.

Stations.	English Scale.		French Scale.		Humidity.
	Boiling-Point.	Air.	Boiling-Point.	Air.	
		°		°	
A. Amarkántak	206°·12 Fahr. = 26·588 inches	75·6	96°·73 C. = 675·3 millim.	24·2	30
Corresponding Stations *B.* Ágra,	29·473 „	75·0	748·6 „	23·9	44
Corresponding Stations *C.* Aligárh	29·375 „	73·6	746·1 „	23·1	50

As inches and Fahrenheit cannot be always reduced, with perfect identity of the decimals, to millimetres and Centigrade, it is evident, that there must be occasionally slight differences in the height, when calculated by the English and at the same time by the French scale These differences are, however, of no importance for the definitive result, which is generally based on the mean of several stations and observations.

Calculation.

	Amarkántak, calculated from			
	B. Ágra.	*C.* Aligárh.	*B.* Ágra.	*C.* Aligárh.
	English Scale.		French Scale.	
log corresponding station.	1·46942	1·46798	2·87425	2 87280
log *A*.	1·42469	1 42469	2·82950	2 82950
u.	0 04473	0·04329	0·04475	0 04330
log *u*.	8·65060	8 63639	8·65079	8 63649
Sum of the temp. of the air = *a*	4·82042	4 81980	4·82041	4 81977
Sum	3·47102	3·45619	3·47120	3 45626
Correction for latitude = *b*	72	71	72	71
Correction for gravity = *c*	6	6	6	6
log *h'*.	3·47180	3 45696	3·47198	3·45703
h' = approximate relative height	2,964	2,864	2,965	2,864
Increase depending on humidity.	12	13	12	13
Uncorrected relative height.	2,976	2,877	2,977	2,877
Correction for month	0	0	0	0
Correction for hour	— 30	— 29	— 30	29
Correction for locality	0	0	0	0
Corrected relative height	2,946	2,848	2,947	2,848
Height of corresponding station	657	750	657	750
Absolute height	3,603	3,598	3,604	3,598

The mean of these observations, combined with others which will be given later, gives as absolute height for Amarkántak · 3,590 feet.

2. *A* = Musták Pass. Latitude N. 36° 1′ Longitude E. Green. 76° 2′, in Bálti, Tíbet.
Loc. *Top of the pass.*

1856, August 22, 11^h 45 A.M. Observer: Adolphe. Barom. 6, Adie.

Geographical Co-ordinates of the Corresponding Stations.

Corresponding Stations.	Latitude North.	Longitude East Green.	Height.
	° ′ ″	° ′ ″	Feet.
B. Leh	34 8 21	77 14 36	11,532
C. Símla . . .	31 6 6	77 7 36	7,057
D. Mássúri . .	30 27 35	78 3 0	6,590

Hypsometric Observations.

Stations.		English Scale.		French Scale		Humidity.
		Barom.	Air.	Barom.	Air.	
		Inches.	°	Millim.	°	
	A. Musták pass	14·989	38·3	380·7	3·5	38
Corresponding Stations	*B.* Leh . .	19·720	61·0	500·9	16·1	59
	C. Símla .	23·193	64·6	589·1	18·1	95
	D. Mässúri	23·591	64·2	599·2	17·9	93

Calculation.

	Musták Pass, calculated from					
	B. Leh.	*C.* Símla.	*D.* Massúri.	*B.* Leh.	*C.* Símla.	*D.* Massúri.
	English Scale.			French Scale.		
log corresponding station	1·29491	1·36536	1 37275	2 69975	2·77019	2·77757
log *A*	1·17577	1 17577	1·17577	2·58058	2·58058	2·58058
n	0·11914	0 18959	0·19698	0 11917	0·18961	0·19699
log *n*	9·07606	9·27782	9 29442	9·07617	9·27786	9·29444
Sum of the temp. of the air = *a*	4·79717	4·79883	4 79865	4·79715	4 79883	4 79865
Sum	3 87323	4 07665	1·09307	3·87332	4·07669	4·09309
Correction for latitude = *b* .	39	44	46	39	44	46
Correction for gravity = *c*	16	26	26	16	26	26
log *h'* .	3·87378	1 07735	4 09379	3·87387	4·07739	4 09381
h' = approximate relative height	7,478	11,950	12,411	7,480	11,951	12,411
Increase depending on humidity	21	48	49	21	48	49
Uncorrected relative height	7,499	11,998	12,460	7,501	11,999	12,460
Correction for month . .	0	0	0	0	0	0
Correction for hour . .	0	0	0	0	0	0
Correction for locality .	0	0	0	0	0	0
Corrected relative height . .	7,499	11,998	12,460	7,501	11,999	12,460
Height of corresponding station	11,532	7,057	6,590	11,532	7,057	6,590
Absolute height .	19,031	19,055	19,050	19,035	19,056	19,050

The mean of these observations, combined with others which will be given later, gives as absolute height for the Musták pass: 19,019 feet.

V. TRIGONOMETRIC MEASUREMENT OF HEIGHTS AND DISTANCES.

I. Instruments: Theodolites, pocket sextants, and vertical circles.
II. Method of Operation.
III. Designation of the Objects measured.
IV. Values and Formulæ adopted.
V. Example.

I. INSTRUMENTS.

In the Himálaya and the elevated districts in the north which have been but partially explored as yet, we frequently made use of theodolites for the determination of heights, the determination of the latitude and longitude being at the same time obtained.

We had five theodolites with us, two of which were divided into 20″; and the other three into 30″. A detailed description of these instruments has been given in connection with our astronomical and magnetic observations.[1]

Pocket sextants, as well as vertical circles,[2] were occasionally used for determining small differences of level.

In the choice of localities for our operations, we took particular care to select such places as not only allowed of a considerable part of the mountain chains being surveyed at once, but also presented at the same time the opportunity of connecting the results with our panoramas and drawings. As our observations were made during the actual progress of our journeys, it was not possible to connect each single series

[1] See Vol. I., pp. 73 to 76.

[2] A description and a figure of this instrument is given in "Neue Untersuchungen über die Alpen, by H. and A. S. 1854," p. 128.

with each other; in many cases the latitude, longitude, and azimuth of the base line were determined in immediate connection with our astronomical and magnetic observations.

II. METHOD OF OPERATION.

Our method of procedure was generally as follows. First a small line was directly measured, and was then connected by triangulation with a larger line, which then served as our final basis. Its length could be controlled again by measuring an analogous line for verification near its other end.

In many instances we were able directly to define our base line by angles taken to points fixed by the Great Trigonometric Survey; moreover, in general our vertical angles, even for high peaks, were very large, while the distances, on the other hand, were very small; a circumstance which, from the nature of the formulæ, considerably increases the accuracy of the result.

We may be allowed to mention the bearings and angular elevations taken in connection with our numerous panoramas and drawings. For every object of some extent, a tracing (in India generally executed by our assistants) has been made, in which the angles obtained are written immediately near the objects measured, a process admitting of considerable precision in defining the individuality of the mountains, &c. The drawings proved of material assistance in recognising the principal objects, when seen in another than the usual direction, since the general profile of dominant peaks shows very little alteration at different angles, when the points of observation are not too distant from each other.

Many of our angles could not be used for calculating heights or distances, as some of the objects were visible from only one place, but even these isolated angles have been used in completing the detail of our maps.

III. DESIGNATION OF THE OBJECTS MEASURED.

Occasionally, we experienced considerable difficulty in finding names for the different objects, as they were measured. The custom of other geographers in similar instances is to distinguish them by an arbitrary number, or initial, with latitude, longitude, and height annexed. The difficulty in our case, however, was incidental

only to the higher uninhabited regions, and even here we found that, in those parts where Brahmanism had obtained a footing, many a snowy peak of striking aspect had been distinguished by names intimately connected with Hindu Mythology, as, Chamalári, Gaurisánkar, Nánda Dévi,[1] &c. In Tíbet and Turkistán, many of the peaks were known to the natives by a name which repeated inquiries proved to be no arbitrary one; and of these we were enabled to avail ourselves. Whenever such designations were wanting, we endeavoured to supply the deficiency by those of any well defined object, such as passes, glaciers, valleys, rivers, springs, &c. in their immediate neighbourhood; for in High Asia such objects are sufficiently distinguished by popular and characteristic names, with which, as we carried on our operations not down in the plains, but in the interior of the country, we had every opportunity of getting a correct and intimate acquaintance.[2] Nevertheless, we were obliged, in some instances, to have recourse to numbers or signs.

IV. VALUES AND FORMULÆ EMPLOYED.

The dimensions of the earth supposed to be a spheroid are taken in our computations at the following values:

$$\text{Axis Major } a = 20922931{\cdot}8 \text{ feet},$$
$$\text{Axis Minor } b = 20853374{\cdot}6 \text{ feet}.$$

These elements are derived from a comparison of the Dodagónta arc (comprised between Punna and Kaliánpur,[3] and measured by the Great Trigonometrical Survey prior to 1826) with the French arc beginning at Greenwich and ending at Formentera.[4]

For registering and computing, we adopt in general the form used in the G. T. Survey, with which some of our assistants had been previously familiar. It will be

[1] In the second part of Vol. III. will be given a glossary, containing the signification and transcription of various geographical and ethnographical names.

[2] Also in the Alps, such objects had not been designated by names before the time when a livelier sense of the necessity of geographical precision became general. It may be remembered that Saussure, in his first scientific exploration of the Alps, found Montblanc without a name well defining the peak: its individuality being merged along with the surrounding region under the general appellation of Monts maudits.

[3] The measurement of the Indian arc, begun by Lambton and continued by Everest and Waugh, extends now over 21° 21′ 16″·6.

[4] Compare the values obtained by other measurements of arc: T. de Schubert, "Essai d'une détermination de la véritable figure de la terre," St. Petersbourgh, 1859, and "Madler's recent notice on the true figure of the earth," in Heis' Wochenschrift, Dec. 1855.

found to contain all the necessary elements, which are arranged with the utmost care and completeness. A detailed example is given pp. 69 and 70.

For our trigonometrical heights we indicate only the eye station, viz. the place from which they have been measured. We exclude any further detail which is not so necessary in this case as in barometrical observations, where the result depends, in a great measure, upon the selection of the corresponding station and general state of the atmosphere. These conditions, although influencing in some degree trigonometrical observations, are nevertheless not of the same importance as those for the determination of barometrical heights.

Refraction. For the terrestrial refraction we adopt for the Western Himálaya and Tíbet: $\frac{1}{16{\cdot}7} = 0{\cdot}060$ of the contained arc. We have deduced this mean value from Capt. T. J. Montgomerie's latest determinations by reciprocal observations during his survey of the Kashmír series, being influenced in our choice by the circumstance of the province for which it was determined possessing a climate much more analogous to that of High Asia in general, than to the more tropical climate of India Proper.[1]

The logarithms used for the respective latitudes in the calculation of the contained arc, are given in a special table at the end of this chapter.

We further append the method given by Savitch, in the "Bulletin de l'Académie de St. Pétersbourgh, 1855," for calculating the co-efficient of terrestrial refraction for the favourable state of the atmosphere, viz. for the case when the objects observed in the telescope appear steady. If

μ = the co-efficient of terrestrial refraction,

C = the geodetic arc between the observer and the object (contained arc), expressed in seconds,

x = the relative height of the object,
D = the distance of the object from the observer,
R = the radius of the earth, or, more precisely, the radius of curvature,

} in English feet.

[1] For India, the value of the refraction is generally found to be about $\frac{1}{15}$ of the contained arc. In Sikkim, the G. T. S. had found by direct determinations, for the months of October and November, the mean terrestrial refraction to be $\frac{1}{13\ 2}$ of the contained arc, a value which we have also adopted for this region. See "Thuillier's Manual of Surveying," London, 1855, Appendix *H.* An interesting table of refraction is also given in Vol. XIV., p. 316, of the Asiatic Researches, in Hodgson's and Herbert's elaborate "Account of the Himálaya Mountains."

H = the apparent vertical elevation of the object,

then we have:

$$D' = D\ (1 - \frac{D^2}{24\ R^2})\ i.\ e.\ D' \text{ is nearly } = D$$

$$x = D' \times \frac{\sin\ (h + \frac{1}{2}\ C - \mu C)}{\cos\ (h + C - \mu C)}\ ; \qquad C = \frac{D}{R \sin 1''}.$$

For obtaining the co-efficient μ, the readings of the barometer and thermometer are required.

If

t = temperature of the air at the station of the observer in Fahrenheit.

t' = 68°·0 Fahr. or adopted standard temperature,

b = the height of the barometer in English inches, reduced to 32° Fahr.

b' = 29·0 English inches,

we have to calculate first

$$s' = \frac{2}{3} \sin\ C \times \tan\ (h\ +\ 0{\cdot}3\ C),$$

and then we have

$$\mu = 0{\cdot}094\ \frac{b}{b'} \times \left(\frac{1}{1 + 0{\cdot}00204\ (t - t')}\right)^3 \left(\frac{1}{1\ +\ 172\ s'}\right)^3$$

V. EXAMPLE.

Trigonometric measurement of the snow peak Tōk, in Ladák.

This peak was measured 1856, July 19, from Lárimo, a well marked peak, situated 6,718 feet N. 86° 33′ 46″ E. of Leh, the capital of Ladák.

Geographical co-ordinates of Lárimo peak = Eye station.

Latitude N. 34° 8′ 25″. Long. E. Gr. 77° 15′ 56″. Height: 13,293 feet.

1. Calculation of the height of Tōk peak.

Distance from Lárimo peak to Tōk peak 91,985 feet.			
Logarithm of the distance in feet . .	4·9637170		
+ log $\frac{\cos 1''}{v}$ (see table p. 88).	3·9933480		
contained arc = 905″·87 . . log	2·9570650		
Apparent vertical angle to Tōk peak,	°	′	″
corr. for instr. error. . . . *Elevation*	4	42	3·0
Refraction = cont. arc × 0·060			54·4
Vertical angle corr. for instr. error and refraction	4	41	8·6
Vert. angle + $\frac{1}{2}$ cont. arc = subtend. angle	4	48	41·5

Subtended angle	4	48	41·5	log sin 8·9236498
Apparent vert. angle	4	41	8·6	log sec 0·0011540
Distance in feet 91,985				log 4·9637170
Relat. differ. of height in feet 7,741·4				log 3·8888208
Height of eye station —				
Lárimo peak	13,293·0 feet			
Absol. height of Tōk peak	21,034·4 „			

II. Calculation of latitude and longitude of Tōk peak.

Elements given.		*Elements sought.*	
Latitude N. of Lárimo	31 8′ 25″ = λ	Latitude N. of Tōk peak	= λ'
Longitude E. Gr. of Lárimo	77 15 56 = L	Longitude E. Gr. of Tōk peak . . .	= L'
Azimuth[1] from Lárimo to Tok peak	37 28 14 = A	Azimuth from Tōk peak to Lárimo	= B

For values P, Q, R, S, &c. see table p. 88.

P. . . .	7·9953315		
log cos A	9·8996378		
log dist.	4·9637170		
		″	′ ″
log $\delta_1 \lambda$	2·8586863	− 722·25	= − 0 12 2·25
Q	9·9980165		
log sec λ	0·0821459		
log tan A	9·8845182		
log $\delta_1 L$	2·8233669	− 665·84	− 0 11 5·84
log sin λ	9·7491338		
log $\delta_1 A$	2·5725007	373·68	= − 0 6 13·68
R	2·37987		
log sin A	9·78416		
log dist.	4·96372		
log $\delta_2 \lambda$	9·70025	= − 0·50	
S	0·38120		
log cot A	0·11548		
log $\delta_2 L$	0·19693	= + 1·57	
T	0·06978		
log $\delta_2 A$	0·26671	− 1·85	

Results.

$\delta_1 \lambda$	− 0 12 2·25	
$\delta_2 \lambda$	0·50	
$\Delta \lambda$	− 0 12 2·75	
λ	34 8 25	
λ'	33 56 22·3	Deduced latitude of Tōk peak.
$\delta_1 L$	− 0 11 5·84	
$\delta_2 L$	+ 1·57	
ΔL	− 0 11 4·27	
L	77 15 56	
L'	77 4 51·7	Deduced longitude of Tōk peak.
$\delta_1 A$	− 0 6 13·68	
$\delta_2 A$	− 1·85	
ΔA	− 0 6 11·83	
$\pi \mid A$	217 28 14	
B	217 22 2·2	
	− N. 37 22 2·2 E.	Deduced azimuth from Tōk peak to Lárimo.

[1] Tōk peak is situated S. 37° 28′ 14″ W. of Lárimo.

VI. TABLES USED IN THE CALCULATIONS.

I. Barometric tables. 1. Sum of the temperatures of the air: *A.* Fahrenheit; *B.* Centigrade. 2. Correction for latitude. 3. Correction for gravity. 4. Increase of the relative height depending on humidity. II. Barometric pressures corresponding to temperatures of boiling water. *A.* Fahrenheit; *B.* Centigrade. III. Trigonometric tables for the Himálaya and Tíbet. *A.* Logarithms for computing the contained arc; *B.* Tables for converting the distances obtained into differences of latitude and longitude.

1. BAROMETRIC TABLES.

1. SUM OF THE TEMPERATURES OF THE AIR: *A.* FAHRENHEIT

$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a
67·6	4 78216	71 6	4·78407	75 6	4 78598	79 6	4 78789	83·6	4 78979	87 6	4 79168
67·8	4·78226	71 8	4 78417	75 8	4 78608	79·8	4 78799	83 8	4·78989	87 8	4 79177
68 0	4 78235	72 0	4 78426	76·0	4 78617	80 0	4 78808	84 0	4 78998	88 0	4 79187
68 2	4·78245	72·2	4 78436	76·2	4 78627	80 2	4·78818	84 2	4 79008	88 2	4 79196
68 4	4 78254	72 4	4·78445	76 4	4·78636	80 4	4 78827	84 4	4 79017	88 4	4 79206
68 6	4 78264	72·6	4 78455	76·6	4 78646	80·6	4 78837	84 6	4 79026	88 6	4 79215
68·8	4·78273	72 8	4 78464	76·8	4 78655	80·8	4 78846	84 8	4 79036	88 8	4 79224
69·0	4 78283	73 0	4 78474	77·0	4 78665	81·0	4·78856	85 0	4 79045	89 0	4 79234
69·2	4 78292	73·2	4·78483	77 2	4 78674	81·2	4·78865	85 2	4 79055	89 2	4 79243
69·4	4 78302	73·4	4·78493	77 4	4 78684	81 4	4 78875	85 4	4 79064	89 4	4 79253
69 6	4 78312	73 6	4 78503	77 6	4 78694	81 6	4 78885	85·6	4 79073	89·6	4 79262
69·8	4·78321	73 8	4 78512	77 8	4·78703	81·8	4·78894	85 8	4 79083	89 8	4 79271
70 0	4 78331	74 0	4 78522	78·0	4 78713	82 0	4 78904	86 0	4 79092	90 0	4 79281
70·2	4 78340	74 2	4·78531	78·2	4 78722	82 2	4·78913	86 2	4 79102	90 2	4 79290
70·4	4·78350	71·4	4 78541	78·4	4·78732	82·4	4·78923	86 4	4·79111	90 4	4 79300
70·6	4 78359	74 6	4 78550	78·6	4·78741	82 6	4 78932	86 6	4 79121	90·6	4 79309
70·8	4 78369	74 8	4 78560	78 8	4·78751	82 8	4 78942	86 8	4·79130	90 8	4 79319
71·0	4 78378	75·0	4·78569	79 0	4 78760	83 0	4·78951	87 0	4 79140	91 0	4 79328
71·2	4·78388	75 2	4 78579	79 2	4 78770	83 2	4 78961	87 2	4 79149	91·2	4 79337
71 4	4·78397	75 4	4 78588	79 4	4 78779	83 4	4 78970	87 4	4 79158	91 4	4 79347

$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a	$t+t'$ Fahr.	a
91° 6	4·79356	100° 8	4·79786	110°·0	4·80212	119°·2	4·80633	128°·4	4·81051	137°·6	4·81464
91 8	4·79366	101·0	4·79795	110 2	4·80221	119 4	4·80642	128·6	4·81060	137 8	4·81473
92 0	4·79375	101 2	4·79805	110·4	4·80230	119 6	4·80651	128·8	4·81069	138·0	4·81482
92·2	4·79385	101 4	4·79814	110 6	4·80239	119·8	4·80660	129 0	4·81078	138·2	4·81491
92 4	4·79394	101 6	4·79823	110·8	4·80248	120 0	4·80669	129 2	4·81087	138·4	4·81500
92 6	4·79404	101 8	4·79832	111 0	4·80258	120·2	4·80678	129 4	4·81096	138 6	4·81509
92 8	4·79413	102 0	4·79842	111 2	4·80267	120 4	4·80687	129 6	4·81105	138 8	4·81518
93 0	4·79422	102 2	4·79851	111 4	4·80276	120 6	4·80696	129 8	4·81114	139 0	4·81526
93 2	4·79432	102 4	4·79860	111 6	4·80285	120 8	4·80705	130·0	4·81123	139 2	4·81535
93 4	4·79441	102 6	4·79869	111 8	4·80294	121 0	4·80715	130 2	4·81132	139 4	4·81544
93 6	4·79450	102 8	4·79879	112 0	4·80303	121 2	4·80724	130 4	4·81141	139·6	4·81553
93 8	4·79460	103 0	4·79888	112 2	4·80312	121·4	4·80733	130 6	4·81150	139 8	4·81562
94 0	4·79469	103 2	4·79897	112 4	4·80322	121 6	4·80742	130 8	4·81159	140 0	4·81571
94 2	4·79478	103 4	4·79907	112 6	4·80331	121 8	4·80751	131 0	4·81168	140 2	4·81580
94 4	4·79488	103 6	4·79916	112 8	4·80340	122 0	4·80760	131·2	4·81177	140 4	4·81589
94 6	4·79497	103 8	4·79925	113 0	4·80349	122 2	4·80769	131·4	4·81186	140 6	4·81598
94 8	4·79506	104 0	4·79935	113 2	4·80359	122 4	4·80778	131 6	4·81194	140 8	4·81606
95 0	4·79516	101 2	4·79944	113 4	4·80368	122 6	4·80787	131 8	4·81203	141 0	4·81615
95 2	4·79525	104 4	4·79953	113 6	4·80377	122 8	4·80796	132 0	4·81212	141 2	4·81624
95 4	4·79534	104 6	4·79963	113·8	4·80386	123 0	4·80806	132·2	4·81221	141·4	4·81633
95·6	4·79544	104·8	4·79972	114 0	4·80395	123·2	4·80815	132·4	4·81230	141·6	4·81642
95 8	4·79553	105 0	4·79981	114 2	4·80405	123·4	4·80824	132 6	4·81239	141 8	4·81651
96 0	4·79562	105 2	4·79991	114 4	4·80414	123 6	4·80833	132 8	4·81248	142 0	4·81660
96 2	4·79572	105 4	4·80000	114 6	4·80423	123 8	4·80842	133·0	4·81257	142 2	4·81669
96·4	4·79581	105 6	4·80009	114 8	4·80432	124 0	4·80851	133 2	4·81266	142 4	4·81678
96 6	4·79590	105 8	4·80018	115 0	4·80441	124 2	4·80860	133·4	4·81275	142 6	4·81687
96·8	4·79599	106 0	4·80028	115 2	4·80450	124 4	4·80869	133·6	4·81284	142·8	4·81696
97·0	4·79609	106 2	4·80037	115 4	4·80460	124 6	4·80878	133·8	4·81293	143·0	4·81705
97·2	4·79618	106 4	4·80046	115·6	4·80469	124·8	4·80887	134 0	4·81302	143·2	4·81714
97 4	4·79627	106 6	4·80055	115 8	4·80478	125·0	4·80896	134 2	4·81311	143 4	4·81723
97 6	4·79637	106 8	4·80065	116 0	4·80487	125·2	4·80905	134 4	4·81320	143·6	4·81732
97 8	4·79646	107 0	4·80074	116 2	4·80496	125 4	4·80914	134 6	4·81329	143·8	4·81741
98·0	4·79655	107 2	4·80083	116 4	4·80505	125·6	4·80923	134 8	4·81338	144·0	4·81750
98 2	4·79665	107 4	4·80092	116 6	4·80514	125 8	4·80932	135 0	4·81347	144 2	4·81759
98 4	4·79674	107 6	4·80101	116 8	4·80523	126 0	4·80941	135 2	4·81356	144 4	4·81767
98 6	4·79683	107 8	4·80110	117 0	4·80532	126 2	4·80951	135 4	4·81365	144·6	4·81776
98 8	4·79693	108 0	4·80120	117 2	4·80541	126 4	4·80960	135 6	4·81374	144 8	4·81785
99·0	4·79702	108 2	4·80129	117 4	4·80551	126·6	4·80969	135 8	4·81383	145·0	4·81794
99·2	4·79712	108 4	4·80138	117·6	4·80560	126 8	4·80978	136 0	4·81392	145 2	4·81803
99·4	4·79721	108 6	4·80147	117 8	4·80569	127 0	4·80987	136 2	4·81401	145·4	4·81812
99·6	4·79730	108 8	4·80157	118·0	4·80578	127 2	4·80996	136 4	4·81410	145·6	4·81820
99 8	4·79740	109 0	4·80166	118·2	4·80587	127·4	4·81005	136·6	4·81419	145·8	4·81829
100·0	4·79749	109 2	4·80175	118·4	4·80596	127 6	4·81014	136 8	4·81428	146·0	4·81838
100·2	4·79758	109 4	4·80184	118 6	4·80605	127 8	4·81023	137 0	4·81437	146·2	4·81847
100 4	4·79768	109 6	4·80193	118 8	4·80614	128 0	4·81033	137·2	4·81446	146·4	4·81855
100 6	4·79777	109 8	4·80203	119 0	4·80624	128·2	4·81042	137 4	4·81455	146 6	4·81864

$t + t'$ Fahr.	a	$t + t'$ Fahr.	a	$t + t'$ Fahr.	a	$t + t'$ Fahr.	a	$t + t'$ Fahr.	a	$t + t'$ Fahr.	a
146°8	4 81873	154°2	4 82200	161°4	4·82516	168°6	4 82829	175°8	4·83140	183°0	4·83450
147 0	4·81882	154·4	4·82209	161·6	4·82525	168 8	4·82837	176 0	4·83148	183·2	4 83458
147·2	4·81891	154 6	4·82217	161 8	4 82534	169 0	4 82846	176·2	4·83157	183·4	4 83467
147·4	4·81900	154·8	4 82226	162·0	4 82542	169 2	4 82855	176·4	4·83166	183 6	4 83475
147·6	4 81909	155·0	4 82235	162·2	4 82551	169 4	4 82863	176·6	4 83174	183·8	4 83484
147 8	4·81918	155·2	4 82244	162·4	4·82560	169 6	4 82872	176·8	4 83183	184 0	4 83492
148 0	4·81926	155·4	4·82252	162 6	4 82569	169 8	4·82881	177·0	4 83192	184 2	4 83501
148·2	4 81935	155 6	4 82261	162·8	4 82577	170 0	4 82889	177·2	4 83200	184 4	4 83509
148·4	4·81944	155·8	4 82270	163 0	4·82586	170 2	4 82898	177 4	4 83209	181 6	4 83518
148 6	4·81953	156 0	4 82279	163 2	4·82595	170 4	4 82907	177·6	4 83218	181 8	4 83526
148 8	4 81962	156·2	4 82288	163 4	4·82603	170 6	4·82915	177 8	4 83226	185 0	4 83535
149 0	4·81971	156 4	4 82296	163 6	4 82612	170·8	4 82924	178 0	4 83235	185 2	4 83543
149 2	4·81980	156·6	4 82305	163 8	4 82621	171·0	4 82933	178·2	4 83243	185 4	4 83552
149 4	4 81989	156 8	4·82314	164 0	4 82629	171 2	4 82941	178 4	4 83252	185 6	4 83560
149 6	4·81998	157·0	4 82323	164 2	4 82638	171 4	4 82950	178 6	4 83260	185 8	4 83569
149·8	4 82006	157·2	4·82331	164 4	4·82646	171·6	4·82959	178·8	4 83269	186 0	4 83577
150·0	4·82015	157 4	4 82340	161 6	4 82655	171 8	4·82967	179 0	4 83277	186·2	4 83586
150·2	4 82024	157 6	4 82349	164 8	4 82664	172 0	4 82976	179 2	4 83286	186 4	4 83591
150 1	4·82033	157·8	4·82358	165·0	4 82673	172 2	4 82985	179 4	4 83295	186 6	4 83602
150·6	4·82042	158·0	4·82366	165 2	4·82681	172·4	4 82993	179 6	4 83303	186 8	4 83611
150·8	4·82051	158·2	4·82375	165 4	4 82690	172·6	4 83002	179·8	4 83312	187 0	4 83619
151·0	4·82059	158·4	4·82384	165 6	4·82699	172 8	4 83011	180·0	4 83320	187 2	4 83628
151 2	4 82068	158 6	4·82392	165 8	4 82707	173·0	4 83019	180·2	4 83329	187·4	4 83636
151·4	4 82077	158·8	4·82401	166·0	4 82716	173 2	4·83028	180·4	4 83337	187 6	4 83645
151·6	4 82086	159·0	4 82410	166 2	4 82725	173·4	4·83037	180 6	4·83346	187 8	4 83653
151·8	4 82094	159 2	4·82418	166 4	4 82733	173 6	4 83045	180·8	4·83354	188 0	4 83662
152·0	4·82103	159·4	4 82427	166·6	4 82742	173·8	4 83054	181·0	4 83363	188·2	4·83670
152 2	4 82112	159 6	4·82436	166 8	4·82751	174·0	4·83063	181·2	4 83372	188·4	4 83679
152 4	4 82121	159·8	4 82445	167·0	4 82759	174·2	4 83071	181 4	4·83380	188 6	4 83687
152·6	4·82130	160 0	4·82453	167 2	4·82768	174 4	4·83080	181 6	4 83389	188 8	4 83696
152 8	4·82138	160·2	4 8 462	167 4	4 82777	171 6	4·83088	181 8	4 83398	189·0	4 83704
153·0	4 82147	160·4	4·82471	167 6	4·82785	174 8	4·83097	182 0	4 83406	189 2	4 83713
153·2	4 82156	160·6	4·82480	167 8	4 82791	175 0	4 83105	182 2	4 83415	189 4	4 83721
153 4	4 82165	160 8	4 82489	168 0	4·82803	175·2	4 83114	182 4	4 83421	189 6	4 83730
153·6	4 82173	161·0	4 82498	168 2	4 82811	175 4	4 83122	182 6	4 83432	189 8	4 83738
153 8	4·82182	161·2	4·82507	168 4	4 82820	175 6	4 83131	182 8	4·83441	190 0	4 83747
154·0	4·82191										

B. CENTIGRADE.

$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a
10·0	1·78904	11·2	1·79260	18·4	1·79615	22·6	1·79967	26·8	1·80315	31·0	1·80660
10·1	1·78912	11·3	1·79268	18·5	1·79623	22·7	1·79976	26·9	1·80323	31·1	1·80669
10·2	1·78921	11·4	1·79277	18·6	1·79632	22·8	1·79984	27·0	1·80331	31·2	1·80677
10·3	1·78930	11·5	1·79286	18·7	1·79640	22·9	1·79992	27·1	1·80339	31·3	1·80685
10·4	1·78938	11·6	1·79295	18·8	1·79649	23·0	1·80000	27·2	1·80347	31·4	1·80693
10·5	1·78947	11·7	1·79303	18·9	1·79657	23·1	1·80009	27·3	1·80356	31·5	1·80701
10·6	1·78956	11·8	1·79312	19·0	1·79665	23·2	1·80017	27·4	1·80364	31·6	1·80709
10·7	1·78964	11·9	1·79320	19·1	1·79674	23·3	1·80025	27·5	1·80372	31·7	1·80718
10·8	1·78972	15·0	1·79328	19·2	1·79682	23·4	1·80034	27·6	1·80381	31·8	1·80726
10·9	1·78980	15·1	1·79337	19·3	1·79690	23·5	1·80042	27·7	1·80389	31·9	1·80734
11·0	1·78989	15·2	1·79345	19·4	1·79699	23·6	1·80051	27·8	1·80397	32·0	1·80742
11·1	1·78997	15·3	1·79351	19·5	1·79707	23·7	1·80059	27·9	1·80406	32·1	1·80751
11·2	1·79006	15·4	1·79362	19·6	1·79715	23·8	1·80067	28·0	1·80111	32·2	1·80759
11·3	1·79011	15·5	1·79370	19·7	1·79724	23·9	1·80075	28·1	1·80423	32·3	1·80767
11·4	1·79022	15·6	1·79379	19·8	1·79732	24·0	1·80083	28·2	1·80131	32·4	1·80775
11·5	1·79031	15·7	1·79387	19·9	1·79741	24·1	1·80091	28·3	1·80439	32·5	1·80783
11·6	1·79039	15·8	1·79396	20·0	1·79749	24·2	1·80100	28·4	1·80447	32·6	1·80791
11·7	1·79048	15·9	1·79404	20·1	1·79758	24·3	1·80108	28·5	1·80455	32·7	1·80799
11·8	1·79056	16·0	1·79413	20·2	1·79767	24·4	1·80116	28·6	1·80464	32·8	1·80808
11·9	1·79065	16·1	1·79421	20·3	1·79775	24·5	1·80121	28·7	1·80472	32·9	1·80816
12·0	1·79071	16·2	1·79430	20·4	1·79783	24·6	1·80132	28·8	1·80480	33·0	1·80824
12·1	1·79082	16·3	1·79438	20·5	1·79791	24·7	1·80140	28·9	1·80488	33·1	1·80833
12·2	1·79090	16·4	1·79446	20·6	1·79800	24·8	1·80149	29·0	1·80496	33·2	1·80841
12·3	1·79099	16·5	1·79455	20·7	1·79808	24·9	1·80157	29·1	1·80505	33·3	1·80849
12·4	1·79107	16·6	1·79463	20·8	1·79816	25·0	1·80166	29·2	1·80513	33·4	1·80857
12·5	1·79116	16·7	1·79472	20·9	1·79824	25·1	1·80175	29·3	1·80521	33·5	1·80865
12·6	1·79125	16·8	1·79480	21·0	1·79832	25·2	1·80183	29·4	1·80529	33·6	1·80873
12·7	1·79133	16·9	1·79488	21·1	1·79840	25·3	1·80191	29·5	1·80537	33·7	1·80881
12·8	1·79142	17·0	1·79497	21·2	1·79849	25·4	1·80199	29·6	1·80546	33·8	1·80889
12·9	1·79150	17·1	1·79505	21·3	1·79857	25·5	1·80207	29·7	1·80551	33·9	1·80897
13·0	1·79158	17·2	1·79511	21·4	1·79865	25·6	1·80215	29·8	1·80562	34·0	1·80905
13·1	1·79167	17·3	1·79523	21·5	1·79871	25·7	1·80223	29·9	1·80570	34·1	1·80914
13·2	1·79175	17·4	1·79531	21·6	1·79883	25·8	1·80231	30·0	1·80578	34·2	1·80922
13·3	1·79184	17·5	1·79539	21·7	1·79891	25·9	1·80239	30·1	1·80587	34·3	1·80930
13·4	1·79192	17·6	1·79548	21·8	1·79900	26·0	1·80248	30·2	1·80595	34·4	1·80938
13·5	1·79200	17·7	1·79556	21·9	1·79908	26·1	1·80256	30·3	1·80603	34·5	1·80946
13·6	1·79209	17·8	1·79564	22·0	1·79916	26·2	1·80264	30·4	1·80611	34·6	1·80955
13·7	1·79217	17·9	1·79573	22·1	1·79925	26·3	1·80273	30·5	1·80619	34·7	1·80963
13·8	1·79226	18·0	1·79581	22·2	1·79933	26·4	1·80282	30·6	1·80627	34·8	1·80971
13·9	1·79234	18·1	1·79590	22·3	1·79941	26·5	1·80290	30·7	1·80635	34·9	1·80979
14·0	1·79243	18·2	1·79598	22·4	1·79949	26·6	1·80299	30·8	1·80644	35·0	1·80987
11·1	1·79251	18·3	1·79606	22·5	1·79958	26·7	1·80307	30·9	1·80652	35·1	1·80996

$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a
35·2	4 81004	39·8	4·81376	44·4	4·81746	49·0	4·82112	53 6	4 82475	58 2	1 82835
35·3	4 81012	39·9	4·81384	44·5	4·81754	49 1	1 82120	53·7	1 82483	58 3	1 82843
35·4	4·81020	40 0	4·81392	44·6	4 81762	49 2	1 82128	53 8	1 82491	58 4	1 82851
35·5	4·81028	40·1	4·81401	44·7	4·81770	49·3	4 82136	53 9	4 82499	58 5	1·82859
35 6	4 81037	40·2	4·81409	44·8	1·81778	49·4	4 82144	54 0	4 82507	58·6	1 82866
35 7	4·81045	10·3	4·81417	14 9	4·81786	49 5	4 82152	54 1	1·82515	58 7	1 82871
35·8	4 81053	40 4	4·81425	45 0	1 81794	49 6	1·82160	54·2	4 82523	58 8	1 82882
35·9	4·81061	40 5	4 81433	45 1	4·81802	49 7	1·82168	54 3	1 82531	58 9	1 82890
36·0	4·81069	40 6	4·81441	45·2	1 81810	49 8	4 82176	54·4	1 82539	59 0	4 82898
36·1	4·81077	40·7	4 81449	45 3	4 81818	49·9	4 82184	54·5	4·82547	59 1	1 82905
36·2	4·81085	10·8	4 81457	45·1	4 81826	50 0	4·82191	54 6	4 82554	59 2	1 82913
36·3	4 81093	40 9	4 81465	45·5	4 81833	50 1	4·82199	54 7	4 82562	59 3	1 82921
36·4	4·81101	41·0	4·81473	15 6	4 81841	50 2	4 82207	54 8	1 82570	59 1	1 82929
36 5	4 81109	11 1	4·81481	15 7	4 81849	50 3	4 82215	54 9	1 82578	59 5	1 82937
36 6	4 81118	41·2	4 81489	15·8	4 81857	50 4	4 82223	55 0	4 82586	59 6	1 82945
36 7	4 81126	11 3	1·81497	45 9	1 81865	50 5	4·82230	55 1	1 82593	59 7	1 82952
36·8	1 81134	41 4	1·81505	46 0	4·81873	50 6	4·82238	55 2	1 82601	59 8	1 82960
36 9	1·81142	41 5	4 81513	46 1	4·81881	50 7	1 82246	55 3	1 82609	59 9	1 82968
37·0	1 81150	41 6	1 81521	46 2	4·81889	50 8	1 82254	55 1	1·82617	60 0	1 82976
37·1	4 81158	11 7	4 81529	46·3	4 81897	50 9	1 82262	55 5	1 82625	60 1	1·82983
37 2	4 81166	41·8	1 81537	16 4	4 81905	51 0	1 82270	55 6	1 82632	60 2	4 82991
37 3	1 81174	41 9	1 81545	16 5	4 81913	51·1	4 82278	55 7	1·82640	60 3	1 82999
37 4	1 81182	42 0	1 81553	46 6	1 81921	51 2	1 82286	55 8	1 82648	60 1	1 83007
37 5	1 81190	12 1	1 81561	46 7	4 81929	51 3	4 82291	55·9	1 82656	60 5	4 83015
37·6	1 81198	42 2	4 81569	16 8	1 81937	51 1	4 82302	56 0	1 82664	60 6	1 83022
37·7	1 81206	42 3	1 81577	46 9	4 81945	51 5	1 82310	56 1	1 82671	60 7	1 83030
37·8	1 81214	42 1	1 81585	47 0	4·81953	51 6	1 82318	56 2	1 82679	60 8	1 83038
37 9	1·81222	42 5	1 81593	47 1	4 81961	51 7	1 82326	56 3	1·82687	60 9	1 83046
38 0	1 81230	42 6	1 81601	47 2	4 81969	51 8	4 82331	56 4	1·82695	61 0	1 83051
38·1	1·81238	42 7	4 81609	47 3	1 81977	51 9	1 82342	56 5	1 82703	61 1	1 83061
38 2	4·81246	12·8	1 81617	47 4	1 81985	52 0	1 82349	56 6	1 82710	61 2	1 83069
38 3	4·81254	42·9	1·81625	47·5	1 81993	52 1	1 82356	56 7	1 82718	61 3	1 83077
38 4	4 81262	43 0	1 81633	47 6	1 82001	52 2	1 82361	56 8	1 82726	61 1	1 83085
38 5	1 81270	43·1	1 81641	47 7	1·82009	52 3	1 82372	56 9	1 82731	61 5	1 83093
38·6	4·81279	43 2	4·81649	47 8	4 82017	52 4	4 82380	57·0	1 82742	61 6	1 83100
38 7	1 81287	43·3	4 81657	47 9	4 82025	52 5	4·82388	57 1	1 82749	61 7	1 83108
38·8	4 81295	43 4	4 81666	48 0	4 82033	52 6	1 82395	57·2	1 82757	61 8	4 83115
38 9	4·81303	43·5	4 81674	48 1	4 82041	52 7	1 82403	57 3	1 82765	61 9	4 83123
39·0	4·81311	43 6	1 81682	48 2	4 82049	52 8	4 82111	57 1	1 82773	62 0	4 83131
39·1	4·81320	43 7	1 81690	48 3	4·82057	52 9	1 82419	57 5	4 82781	62 1	1 83138
39 2	4 81328	43·8	4 81698	18 4	4 82065	53 0	4 82127	57 6	4·82788	62 2	1 83146
39·3	4·81336	43 9	4 81706	18 5	4 82072	53 1	1 82135	57 7	4 82796	62 3	1 83151
39 4	1·81344	44 0	4 81714	48 6	4·82080	53 2	1 82443	57 8	4·82801	62 4	1 83162
39 5	4 81352	41 1	4·81722	48 7	4·82088	53·3	1 82151	57 9	4 82812	62 5	4 83170
39 6	4·81360	44 2	1 81730	48 8	4 82096	53 1	4·82159	58 0	1 82820	62 6	4 83177
39·7	4 81368	44 3	4·81738	48·9	4 82104	53·5	4 82167	58 1	4 82827	62 7	4 83185

$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a	$t+t'$ Cels.	a
62·8	4·83193	64·4	4·83317	66·0	4·83441	67·6	4·83563	69·1	4·83677	70·6	4·83792
62·9	4·83201	64·5	4·83325	66·1	4·83448	67·7	4·83571	69·2	4·83685	70·7	4·83800
63·0	4·83209	64·6	4·83332	66·2	4·83456	67·8	4·83578	69·3	4·83693	70·8	4·83807
63·1	4·83216	64·7	4·83340	66·3	4·83464	67·9	4·83586	69·4	4·83701	70·9	4·83815
63·2	4·83224	64·8	4·83347	66·4	4·83472	68·0	4·83594	69·5	4·83709	71·0	4·83823
63·3	4·83232	64·9	4·83355	66·5	4·83480	68·1	4·83601	69·6	4·83716	71·1	4·83830
63·4	4·83240	65·0	4·83363	66·6	4·83487	68·2	4·83609	69·7	4·83724	71·2	4·83838
63·5	4·83248	65·1	4·83370	66·7	4·83495	68·3	4·83616	69·8	4·83731	71·3	4·83846
63·6	4·83255	65·2	4·83378	66·8	4·83502	68·4	4·83624	69·9	4·83739	71·4	4·83854
63·7	4·83263	65·3	4·83386	66·9	4·83510	68·5	4·83632	70·0	4·83747	71·5	4·83862
63·8	4·83270	65·4	4·83394	67·0	4·83518	68·6	4·83639	70·1	4·83754	71·6	4·83869
63·9	4·83278	65·5	4·83402	67·1	4·83525	68·7	4·83647	70·2	4·83762	71·7	4·83877
64·0	4·83286	65·6	4·83409	67·2	4·83533	68·8	4·83654	70·3	4·83769	71·8	4·83884
64·1	4·83293	65·7	4·83417	67·3	4·83540	68·9	4·83662	70·4	4·83777	71·9	4·83892
64·2	4·83301	65·8	4·83425	67·4	4·83548	69·0	4·83670	70·5	4·83785	72·0	4·83900
64·3	4·83309	65·9	4·83433	67·5	4·83556						

2. *Correction for Latitude.*

φ	b	φ	b
8	108	27	66
9	107	28	63
10	106	29	60
11	104	30	56
12	103	31	53
13	101	32	49
14	100	33	46
15	98	34	42
16	96	35	39
17	93	36	35
18	91	37	31
19	89	38	27
20	86	39	23
21	84	40	20
22	81		
23	78		
24	75		
25	72		
26	69		

3. *Correction for Gravity.*

Sum: $\log u + a$	c
2·6	1
2·7	1
2·8	1
2·9	2
3·0	2
3·1	3
3·2	3
3·3	4
3·4	5
3·5	7
3·6	8
3·7	11
3·8	13
3·9	17
4·0	21
4·1	27
4·2	33
4·3	42
4·4	53

Tables 2 and 3 remain the same, whether the observations are given in Centigrade or Fahrenheit.

4. Increase of the relative height, depending on humidity.

Relative Height.	Half the Sum of the Temperatures of the Atmosphere $\frac{t + t'}{2}$											
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	Centigrade.
	32	41	50	59	68	77	86	95	104	113	122	Fahrenheit.
Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	
1,600	4·2	5·8	7·9	10·8	14·4	19·2	25·5	33 6	43·9	56 9	73 2	
2,400	6·5	8 9	12·1	16·5	22·2	29 4	38 9	49 8	67 1	86 9	111 8	
3,200	8·7	12·0	16·3	22·1	29·7	39·6	52 1	69·1	90·2	116 9	150 5	
4,000	11·1	15·3	20·8	28 1	38·3	50·4	66 6	87 8	114·5	148 3	191 0	
4,800	13·5	18·5	25·2	34·1	45·8	61 1	80·8	106·4	138 8	179 8	231·5	
5,600	16 0	21 9	29·9	40·5	53·4	72·5	95·9	126·0	164·5	213·1	274·3	
6,400	18 5	25·4	34·6	46·8	62·9	83·8	110 9	145·7	190 2	246 4	317 0	
7,200	21·2	29·1	39·6	53·5	71·9	95·8	126 7	167·9	217 2			
8,000	23·9	32·7	44·6	60 2	80·8	107·7	142 4	190 2	244 1			
8,800	26·7	36·5	49·8	67·3	90·3	120·3	159·0	210 5	272 5			
9,600	29·5	40·4	55·1	74·4	99 8	132·9	175 7	230·8	300 9			
10,400	32·5	44·5	60 6	82·0	109·7	146 2	143·2					
11,200	35 5	48 7	66 1	89·5	119·6	159·4	210 7					
12,800	41·9	57·2	77 9	105·1	140·8	187·3	247·6					
14,400	48·6	65·9	88 5	121·3	162·2	216 6						
16,000	55 6	74·7	99·1	137 7	184·0	247 4						
17,600	62·9	83·8	110·2	154·7	206 5	279·8						
19,200	70·5	93 1	121·7	172·1	229 5	313 9						
20,800	78 4	102·6	133·6	189 6	253·2	349·8						

Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8	Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8
	Inches.	Inches	Inches	Inches	Inches.	°	Inches.	Inches.	Inches.	Inches.	Inches.
189·6	18 833	18 841	18 849	18·858	18 866	194 0	20 685	20 694	20·703	20·711	20·720
189 7	18 874	18 882	18 890	18·898	18·906	194 1	20·729	20 738	20·747	20 755	20·764
189 8	18 914	18 922	18 930	18·939	18 947	194 2	20 773	20·782	20·791	20·799	20 808
189 9	18 955	18 963	18 971	18·980	18 988	194·3	20 817	20 826	20 835	20 843	20·852
190 0	18·996	19 004	19 012	19·020	19·028	194 4	20·861	20 870	20·879	20·887	20·896
190 1	19 036	19 044	19·052	19 061	19 069	194 5	20 905	20 914	20·923	20 931	20·940
190·2	19 077	19 085	19 093	19 102	19·110	194 6	20 949	20 958	20 967	20·975	20 984
190·3	19·118	19 126	19 134	19 143	19 151	194·7	20 993	21 002	21·011	21 020	21·029
190 4	19 159	19 167	19 175	19 184	19 192	194 8	21 038	21 047	21·056	21·064	21·073
190 5	19 200	19 208	19 216	19 225	19 233	194 9	21 082	21 091	21·100	21 108	21·117
190 6	19 241	19 249	19·258	19 266	19 275	195·0	21 126	21·135	21 144	21 153	21 162
190 7	19 283	19 291	19 299	19 308	19 316	195 1	21·171	21 180	21·189	21·198	21·207
190·8	19 324	19·332	19 340	19·349	19 357	195 2	21 216	21 225	21 234	21 242	21 251
190 9	19·365	19 373	19 382	19 390	19 399	195 3	21 260	21·269	21·278	21 287	21·296
191 0	19 407	19·415	19 423	19 432	19 440	195 4	21 305	21 314	21 323	21·332	21·341
191 1	19 448	19·456	19 465	19·473	19 482	195·5	21 350	21 359	21 368	21 377	21·386
191·2	19 490	19·498	19·507	19 515	19 521	195·6	21 395	21 404	21 413	21 422	21·431
191·3	19 532	19 540	19 548	19 557	19 565	195·7	21 440	21 449	21 458	21·467	21·476
191·4	19 573	19 581	19·590	19 598	19 607	195 8	21·485	21·494	21 503	21·512	21 521
191 5	19 615	19 623	19 632	19·640	19 649	195 9	21 530	21 539	21 548	21·558	21 567
191 6	19·657	19 665	19 674	19 682	19·691	196 0	21 576	21 585	21 594	21·603	21 612
191 7	19·699	19 707	19 716	19 721	19 733	196 1	21 621	21 630	21·639	21·648	21·657
191 8	19·741	19 749	19 758	19 766	19 775	196 2	21 666	21·675	21·684	21·694	21·703
191 9	19·783	19 791	19 800	19·808	19·817	196 3	21 712	21 721	21 730	21·740	21·749
192 0	19 825	19 831	19·842	19 851	19·859	196 4	21·758	21·767	21·776	21·785	21 794
192 1	19 868	19 876	19 885	19 893	19·902	196 5	21·803	21·812	21·821	21 831	21·840
192 2	19 910	19 918	19 927	19·935	19 944	196·6	21 849	21 858	21 867	21·877	21 886
192 3	19·952	19 961	19 969	19 978	19 986	196·7	21 895	21 904	21 913	21 923	21·932
192 4	19 995	20·003	20 012	20 020	20 029	196 8	21·941	21·950	21 959	21 969	21·978
192 5	20 037	20 046	20 054	20 063	20 071	196 9	21 987	21 996	22·005	22·015	22·024
192·6	20 080	20·089	20·097	20 106	20·114	197·0	22·033	22·042	22·051	22·061	22 070
192 7	20 123	20 132	20 140	20 149	20 157	197·1	22 079	22·088	22 097	22·107	22·116
192·8	20 166	20, 174	20·183	20 191	20 200	197 2	22 125	22 134	22·144	22·153	22 163
192 9	20 208	20·217	20 225	20·234	20 242	197·3	22·172	22 181	22·190	22·200	22 209
193 0	20 251	20 260	20 268	20·277	20·285	197 4	22·218	22·227	22 236	22 246	22 255
193·1	20·294	20 303	20 312	20·320	20 329	197·5	22·264	22·273	22·283	22 292	22·302
193 2	20 338	20·347	20 355	20 364	20 372	197 6	22 311	22·320	22·330	22·339	22·349
193 3	20 381	20 390	20 398	20·407	20 415	197 7	22·358.	22 367	22 376	22 386	22·395
193 4	20 424	20 433	20 441	20 450	20 458	197 8	22·401	22·413	22·423	22 432	22 442
193 5	20 467	20 476	20·185	20 493	20 502	197·9	22·451	22·460	22 470	22 479	22·489
193 6	20 511	20 520	20·528	20·537	20·545	198 0	22·498	22·507	22·517	22·526	22·536
193 7	20 554	20 563	20 572	20 580	20 589	198·1	22 545	22·554	22·564	22 573	22·583
193 8	20 598	20 607	20·615	20 624	20 632	198 2	22·592	22 601	22 611	22 620	22 630
193 9	20 641	20 650	20·659	20 667	20·676	198 3	22 639	22·648	22 658	22 667	22 677

Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8	Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8
°	Inches.	Inches.	Inches.	Inches.	Inches.	°	Inches.	Inches.	Inches.	Inches.	Inches.
198·4	22·686	22·696	22·705	22·715	22·724	202·8	24·847	24·857	24·867	24·878	24·888
198·5	22·734	22·743	22·753	22·762	22·772	202 9	24·898	24 908	24 918	24 929	24 939
198·6	22·781	22·791	22·800	22·810	22 819	203 0	24·949	24·959	24·969	24 980	24 990
198·7	22·829	22·838	22·848	22·857	22 867	203·1	25·000	25·010	25 020	25 031	25 041
198·8	22·876	22·886	22·895	22·905	22·914	203 2	25·051	25 061	25 072	25 082	25 093
198·9	22·924	22·933	22·943	22 952	22 962	203·3	25·103	25 113	25 123	25·134	25 144
199·0	22·971	22·981	22·990	23·000	23 009	203·4	25·154	25·164	25·175	25 185	25 196
199·1	23·019	23·029	23·038	23·048	23 057	203·5	25 206	25·216	25 226	25 237	25·247
199·2	23·067	23·077	23·086	23 096	23·105	203·6	25 257	25 267	25 278	25 288	25 299
199·3	23·115	23·125	23·134	23·144	23 153	203 7	25·309	25·319	25 330	25 340	25 351
199·4	23·163	23·173	23 182	23·192	23·201	203 8	25·361	25 371	25 382	25 392	25 403
199·5	23·211	23·221	23·230	23·240	23 249	203 9	25·413	25·423	25·434	25 444	25·455
199·6	23·259	23·269	23·279	23·288	23 298	204 0	25·465	25 475	25 486	25 496	25 507
199 7	23·308	23·318	23·327	23·337	23·346	204·1	25·517	25 527	25 538	25 548	25 559
199·8	23·356	23·366	23·376	23·385	23·395	204·2	25·569	25·579	25·590	25 600	25 611
199·9	23·405	23 415	23·424	23·434	23 443	204·3	25·621	25 632	25 642	25 653	25·663
200 0	23·453	23·463	23·473	23·482	23·492	204 4	25 674	25·684	25 695	25 705	25·716
200·1	23·502	23·512	23·521	23 531	23 540	204 5	25·726	25 737	25 747	25 758	25 768
200·2	23·550	23·560	23·570	23·580	23·590	204·6	25 779	25·789	25·800	25·810	25 821
200·3	23·600	23·609	23 619	23·628	23 638	204 7	25·831	25·842	25·852	25 863	25 873
200·4	23·648	23·658	23·668	23 677	23·687	204·8	25·884	25·895	25 905	25 916	25 926
200·5	23·697	23·707	23·717	23·726	23·736	204·9	25·937	25 948	25 958	25 969	25 979
200·6	23 746	23·756	23·766	23·775	23 785	205 0	25 990	26 001	26 011	26 022	26 032
200·7	23·795	23 805	23·815	23·825	23 835	205·1	26·043	26·054	26·064	26·075	26 085
200·8	23·845	23·855	23·865	23·874	23·884	205 2	26·096	26·107	26·117	26·128	26 138
200·9	23·894	23·904	23 914	23·923	23 933	205 3	26·149	26·160	26 170	26·181	26 191
201·0	23·943	23·953	23 963	23·973	23 983	205 4	26 202	26·213	26 223	26 234	26·244
201·1	23 993	24·003	24·013	24·022	24 032	205 5	26 255	26·266	26·277	26·287	26 298
201·2	24·042	24·052	24·062	24 072	24·082	205·6	26·309	26·320	26 330	26 341	26 351
201·3	24·092	24 102	24·112	24·122	24 132	205·7	26·362	26·373	26 384	26·394	26 405
201·4	24·142	24 152	24·162	24·171	24·181	205·8	26·416	26·427	26 438	26·448	26·459
201·5	24·191	24·201	24·211	24 221	24·231	205 9	26·470	26 481	26 491	26·502	26 512
201·6	24·241	24·251	24·261	24·271	24 281	206 0	26·523	26 534	26 545	26 555	26 566
201·7	24·291	24·301	24 311	24·321	24·331	206 1	26 577	26 588	26·599	26·609	26 620
201·8	24·341	24·351	24·361	24·371	24 381	206 2	26 631	26 642	26 653	26 663	26·674
201·9	24·391	24 401	24·411	24·422	24·432	206·3	26·685	26·696	26 707	26 718	26·729
202·0	24·442	24·452	24·462	24·472	24·482	206·4	26·740	26·751	26 762	26 772	26 783
202·1	24·492	24·502	24·512	24·522	24·532	206 5	26·794	26·805	26·816	26 826	26 837
202 2	24·542	24·552	24·562	24 573	24 583	206·6	26·848	26 859	26·870	26 881	26·892
202·3	24·593	24·603	24·613	24·624	24·634	206·7	26 903	26 914	26·925	26·935	26·946
202·4	24·644	24·654	24·664	24 674	24·684	206·8	26 957	26 968	26 979	26 990	27 001
202·5	24·694	24·704	24 714	24 725	24·735	206·9	27·012	27 023	27 034	27 044	27 055
202·6	24·745	24·755	24 765	24 776	24 786	207·0	27·066	27 077	27 088	27 099	27 110
202 7	24·796	24·806	24·816	24·827	24·837	207 1	27 121	27·132	27 143	27 154	27 165

Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8	Boiling-Point. Fahr.	Corresponding barometric Pressure. Hundredths of a Degree of Boiling-Point. 0	2	4	6	8
°	Inches.	Inches.	Inches.	Inches.	Inches.	°	Inches.	Inches.	Inches.	Inches.	Inches.
207·2	27 176	27·187	27·198	27 209	27·220	210 2	28·866	28 878	28·889	28·901	28·912
207 3	27 231	27 242	27 253	27 264	27·275	210·3	28·924	28 936	28·947	28 959	28 970
207·4	27 286	27·297	27 308	27·319	27 330	210 4	28·982	28·994	29·005	29·017	29·028
207 5	27 341	27 352	27·363	27·375	27·386	210·5	29·040	29 052	29·063	29·075	29·086
207 6	27·397	27 408	27·419	27·430	27·441	210·6	29 098	29 110	29·121	29·133	29·144
207 7	27 452	27 463	27·474	27 485	27·496	210 7	29·156	29·168	29·180	29·191	29·203
207 8	27 507	27 518	27·529	27 541	27 552	210·8	29 215	29 227	29·238	29·250	29·263
207 9	27·563	27 574	27 585	27·596	27·607	210·9	29·273	29·285	29·296	29·308	29·319
208 0	27 618	27 629	27 640	27·652	27·663	211 0	29 331	29 343	29 355	29·366	29·378
208 1	27·674	27 685	27·696	27·708	27 719	211 1	29 390	29 402	29·414	29·425	29 437
208 2	27·730	27·741	27 752	27·764	27·775	211·2	29 449	29 461	29·473	29 484	29 496
208 3	27 786	27·797	27·808	27·820	27·831	211 3	29·508	29·520	29 531	29·543	29·554
208 4	27 842	27 853	27·864	27 876	27 887	211 4	29 566	29 578	29 590	29 601	29·613
208 5	27 898	27·909	27·920	27 932	27·943	211 5	29·625	29 637	29 649	29 660	29·672
208 6	27 954	27 965	27·977	27·988	28·000	211·6	29·684	29 696	29·708	29·720	29·732
208 7	28 011	28·022	28·033	28·045	28·056	211·7	29 744	29·756	29·768	29·779	29·791
208 8	28·067	28 078	28·089	28 101	28·112	211·8	29 803	29·815	29·827	29 838	29·850
208·9	28 123	28·134	28·146	28·157	28·169	211·9	29·862	29 874	29·886	29·898	29·910
209 0	28 180	28 191	28·203	28·214	28 226	212·0	29·922	29 934	29·946	29 957	29 969
209·1	28·237	28 248	28 259	28 271	28·282	212·1	29·981	29·993	30·005	30·017	30·029
209·2	28 293	28·304	28·316	28 327	28·339	212 2	30 041	30·053	30 065	30 077	30·089
209 3	28 350	28 361	28 373	28 384	28 396	212 3	30·101	30·113	30 125	30 137	30·149
209 4	28 407	28 418	28·430	28·441	28·453	212·4	30·161	30·173	30·185	30·197	30 209
209 5	28·464	28 475	28 187	28 498	28 510	212 5	30·221	30·233	30 245	30 257	30·269
209·6	28 521	28 533	28 544	28 556	28·567	212 6	30 281	30·293	30·305	30·317	30·329
209 7	28 579	28·590	28 602	28 613	28 625	212 7	30 341	30 353	30·365	30 377	30 389
209·8	28 636	28 647	28 659	28·670	28·682	212·8	30·401	30 413	30 425	30 437	30·449
209·9	28·693	28 705	28·716	28 728	28 739	212 9	30·461	30·473	30·458	30·498	30·510
210 0	28 751	28·763	28 774	28 786	28 797	213 0	30 522				
210 1	28·809	28·820	28 832	28·843	28·855						

B. CENTIGRADE.

Boiling-Point. Centi-grade.	Corresponding barometric Pressure in Millimetres.									
	Hundredths of a Degree of Boiling-Point.									
	0	1	2	3	4	5	6	7	8	9
°										
80·0	354·62	354·76	354·91	355 05	355 20	355·34	355·48	355 63	355 77	355 92
80·1	356·06	356·20	356·35	356 49	356 64	356·78	356 92	357 07	357·21	357 36
80·2	357 50	357·65	357·79	357·94	358·08	358 23	358 38	358 52	358·67	358 81
80·3	358·96	359·11	359·25	359·40	359 54	359·69	359 83	359 98	360 12	360 27
80·4	360·41	360·56	360 70	360 85	360·99	361·14	361·29	361 43	361 58	361 72
80·5	361·87	362 02	362·16	362·31	362 46	362 61	362 75	362 90	363 05	363 19
80·6	363·34	363·49	363·63	363·78	363 93	364 08	364 22	364 37	364 52	364 66
80·7	364·81	364·96	365·11	365·25	365·40	365·55	365 70	365 85	365 99	366 14
80·8	366·29	366·44	366 59	366·73	366 88	367 03	367 18	367 33	367 47	367 62
80·9	367·77	367·92	368·07	368·22	368 37	368·52	368 66	368 81	368 96	369 11
81·0	369·26	369 41	369·56	369·71	369·86	370 01	370·15	370 30	370 45	370·60
81·1	370·75	370·90	371·05	371·20	371 35	371·50	371 65	371 80	371·95	372 10
81·2	372 25	372 40	372·55	372·70	372·85	373 00	373 15	373 30	373 45	373 60
81·3	373·75	373·90	374 05	374·20	374 35	371 50	374 65	374·80	374 95	375 10
81·4	375 25	375 40	375 55	375·71	375 86	376 01	376 16	376 31	376 47	376 62
81·5	376·77	376 92	377 07	377 22	377 37	377 53	377·68	377·83	377 98	378 13
81·6	378·28	378·13	378·59	378·74	378 89	379 04	379 20	379·35	379 50	379 66
81 7	379·81	379 96	380 11	380 27	380·42	380 57	380·72	380 87	381 03	381 18
81·8	381·33	381 48	381 64	381·79	381·95	382·10	382·25	382 41	382 56	382 72
81·9	382·87	383 02	383 18	383 33	383 48	383 64	383·79	383·94	384 09	384 25
82 0	384·40	384 56	384·71	384 87	385 02	385 18	385 33	385 49	385·64	385 80
82 1	385 95	386 10	386 26	386 41	386 57	386 72	386 87	387 03	387 18	387 34
82·2	387·49	387·65	387 80	387·96	388 11	388 27	388 43	388 58	388·74	388 89
82 3	389 05	389·21	389 36	389 52	389·67	389·83	389 99	390 14	390·30	390 45
82 4	390 61	390·77	390 92	391·08	391·23	391 39	391 55	391·70	391 86	392 01
82·5	392 17	392·33	392·48	392 64	392·80	392 96	393 11	393 27	393 43	393 58
82 6	393 74	393·90	394 05	394·21	394 37	394 53	394 68	394·84	395 00	395 15
82 7	395·31	395 47	395·63	395·78	395 94	396 10	396 26	396·42	396 57	396 73
82 8	396·89	397·05	397·21	397 37	397·53	397 69	397·84	398 00	398 16	398 32
82 9	398·48	398·64	398·80	398 96	399 12	399 28	399·43	399·59	399 75	399 91
83·0	400 07	400·23	400·39	400 55	400 71	400·87	401·02	401·18	401 34	401 50
83·1	401·66	401·82	401 98	402·14	402 30	402 46	402 62	402 78	402 94	403 10
83 2	403 26	403·42	403 58	403·74	403·90	404 07	404·23	404 39	401 55	401 71
83·3	404 87	405·03	405·19	405 35	405·51	405 68	405 84	406 00	406 16	406 32
83·4	406·48	406·64	406·80	406 97	407 13	407·29	407 45	407 61	407 78	407 91
83 5	408·10	408·26	408 42	408·59	408 75	408 91	409 07	409 23	409 40	409 56
83·6	409·72	409·88	410·05	410 21	410 37	410·54	410·70	410 86	411 02	411 19
83·7	411·35	411·51	411·68	411 84	412 00	412 17	412 33	412 49	412 65	412 82
83·8	412·98	413·14	413·31	413·47	413·64	413·80	413 96	414 13	414·29	414·46
83·9	414·62	414 78	414·95	415·11	415 28	415 44	415·60	415 77	415 93	416 10
84.0	416·26	416·43	416 59	416 76	416·92	417 09	417 25	417 42	417·58	417 75
84·1	417·91	418·08	418 25	418·41	418 57	418·74	418 91	419 07	419 24	419 40
84·2	419·57	419·74	419·90	420·07	420·23	420 40	420·57	420 73	420 90	421 06

Boiling-Point. Centi-grade.	Corresponding barometric Pressure in Millimetres. Hundredths of a Degree of Boiling-Point.									
	0	1	2	3	4	5	6	7	8	9
84·3	421·23	421·40	421·56	421·73	421·89	422·06	422·23	422·39	422·56	422·72
84·4	422·89	423·06	423·22	423·39	423·56	423·73	423·89	424·06	424·23	424·39
84·5	424·56	424·73	424·90	425·06	425·23	425·40	425·57	425·74	425·90	426·07
84·6	426·24	426·41	426·58	426·74	426·91	427·08	427·25	427·42	427·58	427·75
84·7	427·92	428·09	428·26	428·43	428·60	428·77	428·93	429·10	429·27	429·44
84·8	429·61	429·78	429·95	430·12	430·29	430·46	430·62	430·79	430·96	431·13
84·9	431·30	431·47	431·64	431·81	431·98	432·15	432·32	432·49	432·66	432·83
85·0	433·00	433·17	433·34	433·51	433·68	433·86	434·03	434·20	434·37	434·54
85·1	434·71	434·88	435·05	435·22	435·39	435·57	435·74	435·91	436·08	436·25
85·2	436·42	436·59	436·76	436·93	437·10	437·28	437·45	437·62	437·79	437·96
85·3	438·13	438·30	438·47	438·65	438·82	438·99	439·16	439·33	439·51	439·68
85·4	439·85	440·02	440·20	440·37	440·54	440·72	440·89	441·06	441·23	441·41
85·5	441·58	441·75	441·93	442·10	442·27	442·45	442·62	442·79	442·96	443·14
85·6	443·31	443·48	443·66	443·83	444·01	444·18	444·35	444·53	444·70	444·88
85·7	445·05	445·23	445·40	445·58	445·75	445·93	446·10	446·28	446·45	446·63
85·8	446·80	446·98	447·15	447·33	447·50	447·68	447·85	448·03	448·20	448·38
85·9	448·55	448·73	448·90	449·08	449·25	449·43	449·60	449·78	449·95	450·13
86·0	450·30	450·48	450·65	450·83	451·00	451·18	451·36	451·53	451·71	451·88
86·1	452·06	452·24	452·41	452·59	452·77	452·95	453·12	453·30	453·48	453·65
86·2	453·83	454·01	454·18	454·36	454·54	454·72	454·89	455·07	455·25	455·42
86·3	455·60	455·78	455·96	456·13	456·31	456·49	456·67	456·85	457·02	457·20
86·4	457·38	457·56	457·74	457·92	458·10	458·28	458·45	458·63	458·81	458·99
86·5	459·17	459·35	459·53	459·71	459·89	460·07	460·24	460·42	460·60	460·78
86·6	460·96	461·14	461·32	461·50	461·68	461·86	462·03	462·21	462·39	462·57
86·7	462·75	462·93	463·11	463·29	463·47	463·65	463·83	464·01	464·19	464·37
86·8	464·55	464·73	464·91	465·09	465·27	465·46	465·64	465·82	466·00	466·18
86·9	466·36	466·54	466·72	466·90	467·08	467·27	467·45	467·63	467·81	467·99
87·0	468·17	468·35	468·53	468·72	468·90	469·08	469·26	469·44	469·63	469·81
87·1	469·99	470·17	470·36	470·54	470·72	470·91	471·09	471·27	471·45	471·64
87·2	471·82	472·00	472·19	472·37	472·55	472·74	472·92	473·10	473·28	473·47
87·3	473·65	473·83	474·02	474·20	474·39	474·57	474·75	474·94	475·12	475·31
87·4	475·49	475·67	475·86	476·04	476·23	476·41	476·59	476·78	476·96	477·15
87·5	477·33	477·52	477·70	477·89	478·07	478·26	478·44	478·63	478·81	479·00
87·6	479·18	479·37	479·55	479·74	479·92	480·11	480·30	480·48	480·67	480·85
87·7	481·04	481·23	481·41	481·60	481·78	481·97	482·16	482·34	482·53	482·71
87·8	482·90	483·09	483·27	483·46	483·64	483·83	484·02	484·20	484·39	484·57
87·9	484·76	484·95	485·14	485·32	485·51	485·70	485·89	486·08	486·26	486·45
88·0	486·64	486·83	487·02	487·20	487·39	487·58	487·77	487·96	488·14	488·33
88·1	488·52	488·71	488·90	489·08	489·27	489·46	489·65	489·84	490·02	490·21
88·2	490·40	490·59	490·78	490·97	491·16	491·35	491·53	491·72	491·91	492·10
88·3	492·29	492·48	492·67	492·86	493·05	493·24	493·43	493·62	493·81	494·00
88·4	494·19	494·38	494·57	494·76	494·95	495·14	495·33	495·52	495·71	495·90
88·5	496·09	496·28	496·47	496·66	496·85	497·05	497·24	497·43	497·62	497·81
88·6	498·00	498·19	498·38	498·58	498·77	498·96	499·15	499·34	499·54	499·73

Boiling-Point. Centi-grade.	Corresponding barometric Pressure in Millimetres. Hundredths of a Degree of Boiling-Point.									
	0	1	2	3	4	5	6	7	8	9
°										
88·7	499·92	500·11	500·30	500·50	500·69	500·88	501·07	501·26	501·46	501·65
88·8	501·84	502 03	502·23	502·42	502·61	502·81	503·00	503 19	503·38	503·58
88·9	503·77	503 96	504·16	504·35	504·54	504 74	504·93	505·12	505 31	505·51
89 0	505·70	505·90	506·09	506 29	506·48	506·68	506·87	507 07	507 26	507·46
89·1	507·65	507·84	508 04	508·23	508·43	508·62	508 81	509·01	509·20	509 40
89·2	509·59	509·79	509 98	510 18	510·37	510·57	510·76	510·96	511·15	511 35
89 3	511·54	511·74	511·93	512 13	512 32	512 52	512·72	512 91	513 11	513 30
89·4	513·50	513·70	513·89	514·09	514·29	514·49	514 68	514·88	515·08	515 27
89·5	515·47	515·67	515 86	516 06	516·26	516·46	516 65	516 85	517 05	517·24
89·6	517 44	517·64	517·84	518·03	518 23	518 43	518 63	518 83	519·02	519 22
89·7	519·42	519·62	519·82	520·01	520·21	520·41	520·61	520 81	521 00	521 20
89·8	521·40	521·60	521·80	522·00	522·20	522 40	522·59	522 79	522 99	523 19
89·9	523·39	523·59	523·79	523·99	524 19	524·39	524 59	524 79	524 99	525 19
90 0	525 39	525·59	525 79	525 99	526·19	526·40	526·60	526·80	527 00	527 20
90·1	527·40	527·60	527·80	528·00	528 20	528·41	528 61	528 81	529·01	529 21
90·2	529·41	529 61	529·81	530 01	530 21	530 42	530·62	530 82	531 02	531 22
90·3	531·42	531·62	531·82	532 03	532·23	532·43	532 63	532 83	533 04	533 24
90·4	533·44	533 64	533 85	534·05	534 25	534·46	534·66	534·86	535 06	535 27
90·5	535·47	535 67	535 88	536 08	536 29	536·49	536·69	536·90	537·10	537·31
90·6	537·51	537·71	537·92	538·12	538 33	538·53	538 73	538 94	539 14	539 35
90·7	539·55	539 76	539·96	540 17	540 37	540·58	540 78	540 99	541 19	541 40
90 8	541·60	541·81	542 01	542 22	542·42	542·63	542 83	543·01	543 24	543 45
90 9	543 65	543·86	544·06	544·27	544·47	544 68	544 89	545 09	545·30	545 50
91·0	545·71	545·92	546·12	546 33	546 54	546·75	546·95	547 16	547 37	547 57
91·1	547·78	547·99	548 20	548·40	548 61	548·82	549 03	549·24	549 44	549 65
91·2	549·86	550·07	550·28	550 48	550 69	550·90	551·11	551·32	551 52	551 73
91 3	551 94	552·15	552 36	552·57	552 78	552·99	553·19	553 40	553 61	553·82
91 4	554·03	554 24	554 45	554 66	554·87	555 08	555 28	555·49	555 70	555 91
91 5	556·12	556 33	556 54	556 75	556 96	557 17	557·38	557 59	557·80	558 01
91·6	558 22	558·43	558 64	558 85	559 06	559 28	559 49	559·70	559 91	560·12
91·7	560·33	560 54	560 75	560 96	561 17	561 39	561 60	561·81	562·02	562 23
91 8	562 44	562·65	562·86	563·08	563 29	563·50	563·71	563·92	564 14	564·35
91·9	564 56	564 77	564·99	565 20	565·41	565·63	565·84	566·05	566·26	566·48
92 0	566·69	566·90	567 12	567·33	567 54	567·76	567 97	568·18	568 39	568 61
92·1	568·82	569·03	569·25	569·16	569·68	569·89	570 10	570·32	570 53	570 75
92 2	570·96	571·18	571·39	571 61	571·82	572·04	572 25	572·47	572 68	572 90
92·3	573·11	573·33	573 54	573 76	573 97	574 19	574·41	574·62	574·84	575 05
92·4	575·27	575·49	575·70	575 92	576·13	576 35	576 57	576 78	577·00	577 21
92·5	577·43	577 65	577·86	578·07	578·29	578·51	578 73	578 94	579 16	579 37
92·6	579·59	579·81	580·03	580 24	580 46	580·68	580 90	581·12	581 33	581 55
92·7	581·77	581 99	582·21	582·42	582 64	582·86	583 08	583 30	583 51	583 73
92·8	583·95	584 17	584 39	584 61	584·83	585 05	585 26	585·48	585·70	585 92
92·9	586·14	586·36	586·58	586·80	587 02	587·24	587 45	587 67	587 89	588 11
93·0	588·33	588·55	588·77	588 99	589·21	589 43	589 65	589·87	590 09	590 31

Boiling-Point. Centi-grade.	Corresponding barometric Pressure in Millimetres. Hundredths of a Degree of Boiling-Point.									
	0	1	2	3	4	5	6	7	8	9
93·1	590·53	590·75	590 97	591 19	591·41	591·64	591·86	592·08	592·30	592 52
93·2	592·74	592 96	593 18	593 41	593 63	593·85	594·07	594 29	594·52	594·74
93·3	594·96	595·18	595 40	595 63	595 85	596 07	596·29	596 51	596·74	596·96
93 4	597 18	597 40	597 63	597·85	598 07	598 30	598·52	598 74	598·96	599 19
93 5	599 41	599 63	599 86	600 08	600 31	600 53	600 75	600 98	601·20	601·43
93 6	601 65	601 87	602 10	602·32	602·55	602 77	602·99	603·22	603 44	603·67
93 7	603 89	604·12	604 34	604·57	604 79	605 02	605 24	605·47	605·69	605·92
93·8	606·14	606 37	606·59	606·82	607·04	607 27	607·50	607·72	607·95	608·17
93 9	608·40	608 63	608 85	609 08	609 30	609 53	609 76	609 98	610·21	610·43
94·0	610·66	610 89	611·11	611·34	611 57	611 80	612 02	612·25	612·48	612·70
94 1	612 93	613 16	613·39	613 61	613 84	614 07	614 30	614·53	614·75	614·98
94 2	615 21	615 44	615 67	615 90	616 13	616 36	616·58	616 81	617·04	617·27
94 3	617 50	617 73	617 96	618 19	618 42	618 65	618·87	619 10	619 33	619 56
94·4	619 79	620 02	620·25	620 48	620 71	620·94	621·17	621·40	621·63	621 86
94 5	622 09	622·32	622 55	622·78	623 01	623·24	623·47	623 70	623·93	624 16
94 6	621 39	624 62	624·85	625·09	625 32	625·55	625 78	626·01	626 25	626·48
94 7	626 71	626·94	627 17	627 41	627 64	627·87	628·10	628·33	628·57	628·80
94 8	629 03	629 26	629·50	629·73	629·96	630 20	630·43	630·66	630 89	631·13
94·9	631 36	631·59	631 83	632 06	632 29	632·53	632 76	632 99	633 22	633 46
95·0	633 69	633·92	634 16	631 39	634 63	634 86	635·09	635 33	635·56	635·80
95 1	636·03	636 27	636·50	636 71	636·97	637 21	637·44	637 68	637·91	638 15
95 2	638 38	638 62	638 85	639 09	639 32	639·56	639 80	640·03	640 27	640·50
95 3	640·74	640 98	641 21	641·45	641 68	641·92	642 16	642 39	642·63	642·86
95 4	643 10	643 31	643·58	643 81	641 05	644 29	644·53	644·77	645 00	645·24
95·5	645 48	645 72	645 96	646·19	646·43	646 67	646·91	647·15	647 38	647·62
95 6	647 86	648 10	648 34	648 57	648 81	649·05	649·29	649·53	649 76	650·00
95 7	650 24	650 48	650 72	650·96	651 20	651 44	651·67	651 91	652·15	652 39
95·8	652 63	652 87	653·11	653 35	653 59	653 84	654 08	651 32	654 56	654·80
95 9	655 01	655 28	655 52	655 76	656·00	656 24	656 48	656·72	656 96	657·20
96 0	657 14	657 68	657 92	658·17	658·41	658 65	658·89	659 13	659·38	659·62
96 1	659 86	660 10	660 31	660 59	660 83	661·07	661·31	661 55	661·80	662·04
96 2	662·28	662 52	662 77	663 01	663 25	663·50	663·74	663·98	664 22	664·47
96 3	664 71	664 95	665 20	665 44	665 69	665·93	666·17	666·42	666·66	666 91
96·4	667 15	667·39	667 64	667 88	668 13	668 37	668 61	668 86	669 10	669 35
96·5	669 59	669 84	670·08	670·33	670·57	670·82	671 07	671·31	671·56	671·80
96 6	672 05	672·30	672 54	672·79	673·03	673 28	673·53	673·77	674 02	674·26
96·7	674 51	674 76	675·00	675 25	675 49	675 74	675·99	676 23	676 48	676·72
96·8	676·97	677·22	677 47	677·71	677 96	678·21	678 46	678·71	678·95	679·20
96 9	679·45	679·70	679 95	680 19	680 41	680·69	680·94	681 19	681·43	681·68
97 0	681 93	682·18	682·43	682·68	682 93	683 18	683·42	683·67	683·92	684 17
97·1	684·42	684 67	684·92	685 17	685·42	685 67	685·92	686 17	686·42	686·67
97·2	686 92	687·17	687·42	687 67	687·92	688·17	688 42	688·67	688·92	689 17
97·3	689 42	689 67	689·92	690 18	690 43	690 68	690 93	691·18	691·44	691·69
97·4	691 94	692·19	692 44	692·70	692·95	693 20	693 45	693·70	693·96	694·21

Boiling-Point. Centi-grade.	Corresponding barometric Pressure in Millimetres. Hundredths of a Degree of Boiling-Point.									
	0	1	2	3	4	5	6	7	8	9
°										
97·5	694·46	694·71	694·96	695·22	695 47	695 72	695 97	696 22	696 48	696·73
97·6	696·98	697·23	697·49	697 74	698·00	698 25	698·50	698·76	699·01	699·27
97·7	699·52	699·77	700·03	700·28	700 54	700 79	701 04	701 30	701 55	701 81
97·8	702·06	702·32	702·57	702·83	703 08	703 34	703 60	703 85	704 11	704 36
97·9	704·62	704·88	705 13	705·39	705·64	705 90	706·15	706 41	706 66	706 92
98·0	707·17	707·43	707 68	707·94	708·20	708 46	708 71	708 97	709 23	709 48
98·1	709·74	710·00	710 25	710 51	710 77	711·03	711·28	711·54	711 80	712·05
98·2	712·31	712·57	712 83	713 09	713 35	713 61	713·86	714 12	714 38	711 64
98·3	714·90	715·16	715 42	715 68	715·94	716·20	716 45	716 71	716 97	717 23
98·4	717·49	717·75	718·01	718 27	718·53	718 79	719 04	719·30	719 56	719 82
98·5	720·08	720·34	720 60	720 86	721 12	721·39	721 65	721 91	722 17	722 43
98·6	722·69	722·95	723 21	723 47	723 73	724·00	724 26	724 52	724 78	725 01
98·7	725·30	725 56	725 83	726·09	726 35	726 62	726 88	727 14	727 40	727 67
98·8	727·93	728·19	728 45	728 72	728 98	729·24	729 50	729·76	730 03	730·29
98·9	730·55	730 81	731 08	731 34	731·61	731 87	732 13	732 40	732 66	732·93
99·0	733 19	733·46	733 72	733 99	734 25	731 52	731·78	735 05	735 31	785·58
99·1	735·84	736·11	736 37	736 64	736 90	737 17	737 43	737 70	737 96	738 23
99·2	738·49	738·76	739 02	739·29	739 55	739 82	740 09	740 35	740 62	740·88
99·3	741·15	741 42	741 68	741 95	742·22	742·49	742 75	743·02	743 29	743·55
99 4	743·82	744·09	744·36	741·62	744·89	745·16	745 43	745 70	745·96	746 23
99 5	746·50	746·77	747·04	747·30	747 57	747·84	748·11	748 38	748 64	748 91
99·6	749·18	749 45	749·72	749 99	750 26	750 53	750 79	751 06	751·33	751 60
99·7	751·87	752·14	752 41	752 68	752 95	753·22	753·49	753 76	751 03	754 30
99·8	754·57	754·84	755·11	755 38	755 65	755·93	756 20	756 47	756 74	757 01
99·9	757 28	757 55	757 82	758 10	758·37	758·64	758 91	759 18	759 46	759 73
100·0	760·00	760·27	760·55	760 82	761·09	761·37	761 64	761 91	762 18	762·46
100·1	762·73	763·00	763·28	763 55	763 82	764 10	761 37	761 64	764 91	765 19
100·2	765·46	765·73	766·01	766·28	766 56	766·83	767·10	767 38	767 65	767·93
100·3	768 20	768·48	768 75	769·03	769·30	769·58	769 85	770 13	770·40	770 68
100·4	770 95	771 23	771 50	771 78	772 05	772·33	772 61	772·88	773·16	773 43
100·5	773·71	773·99	774·26	774 54	774·81	775·09	775 37	775 64	775·92	776 19
100 6	776·47	776·75	777·03	777 30	777 58	777·86	778 14	778 42	778 69	778 97
100·7	779·25	779·53	779 81	780 08	780 36	780·64	780·92	781·20	781 47	781 75
100·8	782·03	782·31	782 59	782·87	783 15	783·43	783·70	783 98	784 26	784 54
100·9	784·82	785·10	785 38	785·66	785·94	786·22	786 50	786 78	787·06	787·34

III. TRIGONOMETRIC TABLES FOR THE HIMÁLAYA AND TÍBET.

A. LOGARITHMS FOR COMPUTING THE CONTAINED ARC.

Term: $\frac{\text{cosec } 1''}{r}$

Latitude North.	Logarithms.	Diff.	Latitude N.	Logarithms.	Diff.	Latitude N.	Logarithms.	Diff.
″		—	°		—	°		—
22	7·9936002	178	27	7 9935053	206	32	7·9933975	229
23	7 9935824	184	28	7 9934847	212	33	7·9933746	232
24	7 9935640	190	29	7 9934635	216	34	7·9933514	235
25	7·9935450	196	30	7 9934419	220	35	7·9933279	239
26	7·9935254	201	31	7 9934199	224	36	7·9933040	

B. TABLES FOR CONVERTING THE DISTANCES OBTAINED IN DIFFERENCES OF LATITUDES AND LONGITUDES.

Latitude North.	*P*	Diff.	*Q*	Diff.	*R*	Diff.	*S*	Diff.	*T*	Diff.
° ′		—				—		+		—
22 0	7 9960880	90	9 9975123	60	2 38063	1	0 33138	52	0·18431	236
22 10	7 9960790	87	9 9975183	58	2 38062	0	0 33190	52	0·18195	232
22 20	7 9960703	90	9·9975241	60	2·38062	1	0·33242	52	0·17963	231
22 30	7 9960613	90	9·9975301	60	2 38061	1	0 33294	54	0 17732	226
22 40	7 9960523	88	9·9975361	59	2 38060	1	0 33348	53	0·17506	224
22 50	7 9960435	91	9 9975420	60	2 38059	1	0 33401	54	0·17282	221
23 0	7 9960344	91	9·9975480	61	2·38058	1	0·33455	55	0·17061	219
23 10	7 9960253	91	9 9975541	61	2 38057	1	0 33510	55	0·16842	216
23 20	7 9960162	92	9 9975602	61	2 38056	1	0 33565	55	0·16626	214
23 30	7 9960070	93	9 9975663	62	2 38055	1	0 33620	56	0 16112	210
23 40	7 9959977	92	9 9975725	61	2·38054	1	0·33676	56	0 16202	208
23 50	7·9959885	94	9·9975786	63	2 38053	1	0 33732	56	0·15994	207
24 0	7·9959791	93	9·9975849	62	2·38052	1	0 33788	58	0·15787	202
24 10	7·9959698	95	9 9975911	63	2·38051	1	0 33846	57	0·15585	201
24 20	7 9959603	96	9 9975974	64	2·38051	0	0 33903	58	0·15384	198
24 30	7·9959507	96	9·9976038	65	2 38050	1	0·33961	59	0·15186	196
24 40	7 9959411	94	9·9976103	62	2·38049	1	0 34020	58	0·14990	194
24 50	7 9959317	96	9·9976165	61	2 38048	1	0·34078	60	0·14796	191
25 0	7·9959221	96	9·9976229	64	2·38047	1	0 34138	59	0·14605	189
25 10	7·9959125	99	9·9976293	66	2·38046	1	0·31197	61	0·14416	186
25 20	7 9959026	97	9·9976359	64	2·38045	1	0 34258	60	0 14230	185
25 30	7 9958929	98	9 9976123	66	2·38044	1	0·34318	62	0·14045	182
25 40	7 9958831	97	9·9976489	65	2·38043	1	0·34380	61	0·13863	180

Latitude North.	P	Diff.	Q	Diff.	R	Diff.	S	Diff.	T	Diff.
° ′										
25 50	7·9958734	—	9·9976554	+	2·38042	—	0·34441	+	0·13683	—
		98		65		1		62		178
26 0	7·9958636		9·9976619		2 38041		0 34503		0·13505	
		102		68		1		63		175
26 10	7·9958534		9 9976687		2·38040		0·34566		0 13330	
		100		67		1		63		174
26 20	7·9958434		9·9976754		2·38039		0·34629		0·13156	
		101		67		1		63		171
26 30	7 9958333		9 9976821		2·38038		0 34692		0·12985	
		99		66		1		64		170
26 40	7·9958234		9·9976887		2·38037		0 34756		0 12815	
		102		68		1		64		166
26 50	7·9958132		9·9976955		2·38036		0 34820		0 12649	
		102		68		1		65		167
27 0	7·9958030		9 9977023		2 38035		0 34885		0·12482	
		101		67		1		65		163
27 10	7·9957929		9·9977090		2 38034		0·34950		0 12319	
		103		69		1		66		161
27 20	7·9957826		9·9977159		2·38033		0·35016		0 12158	
		103		69		1		66		160
27 30	7·9957723		9 9977228		2 38032		0 35082		0 11998	
		104		69		1		67		158
27 40	7 9957619		9·9977297		2 38031		0 35149		0 11840	
		102		68		1		67		155
27 50	7·9957517		9·9977365		2·38030		0·35216		0 11685	
		106		70		1		68		154
28 0	7·9957411		9 9977435		2 38029		0 35284		0 11531	
		104		70		1		68		152
28 10	7·9957307		9·9977505		2 38028		0·35352		0 11379	
		105		70		1		68		150
28 20	7·9957202		9·9977575		2 38027		0 35420		0 11229	
		107		71		2		70		149
28 30	7·9957095		9·9977646		2·38025		0 35490		0 11080	
		105		70		1		69		147
28 40	7 9956990		9·9977716		2 38024		0 35559		0 10933	
		106		71		1		70		144
28 50	7·9956884		9 9977787		2 38023		0 35629		0 10789	
		106		70		1		71		144
29 0	7·9956778		9 9977857		2 38022		0 35700		0 10645	
		107		72		1		71		141
29 10	7·9956671		9 9977929		2 38021		0·35771		0 10504	
		107		71		1		71		140
29 20	7·9956564		9 9978000		2 38020		0 35842		0 10364	
		109		73		1		72		138
29 30	7 9956455		9 9978073		2 38019		0 35914		0 10226	
		108		72		1		72		136
29 40	7·9956347		9·9978145		2 38018		0 35986		0 10090	
		109		73		1		73		135
29 50	7·9956238		9·9978218		2 38017		0 36059		0 09955	
		110		73		1		74		133
30 0	7·9956128		9·9978291		2 38016		0 36133		0·09822	
		108		72		1		74		132
30 10	7·9956020		9·9978363		2 38015		0 36207		0 09690	
		109		73		1		74		130
30 20	7·9955911		9 9978436		2·38014		0 36281		0 09560	
		110		73		1		75		129
30 30	7·9955801		9·9978509		2·38013		0·36356		0 09431	
		110		73		2		75		127
30 40	7 9955691		9·9978582		2·38011		0 36431		0·09304	
		111		71		1		76		125
30 50	7·9955580		9·9978656		2 38010		0 36507		0 09179	
		112		75		1		77		124
31 0	7·9955468		9·9978731		2·38009		0 36584		0 09055	
		110		73		1		77		122
31 10	7·9955358		9 9978804		2 38008		0 36661		0 08933	
		113		76		1		77		121
31 20	7·9955245		9 9978880		2·38007		0 36738		0 08812	
		111		74		1		78		120
31 30	7·9955134		9·9978954		2·38006		0 36816		0 08692	
		113		75		1		78		119
31 40	7·9955021		9·9979029		2·38005		0 36894		0 08573	
		112		75		1		79		116
31 50	7·9954909		9·9979104		2·38004		0 36973		0 08457	
		113		75		2		80		115
32 0	7·9954796		9 9979179		2·38002		0 37053		0 08342	
		114		76		1		80		114
32 10	7·9954682		9 9979255		2·38001		0 37133		0 08228	
		114		75		1		80		113
32 20	7·9954568		9·9979330		2·38000		0 37213		0 08115	
		114		76		1		81		111
32 30	7·9954454		9 9979406		2·37999		0·37249		0 08001	
		114		77		1		82		110
32 40	7·9954340		9·9979483		2·37998		0 37376		0·07894	
		115		76		1		82		108

Latitude North.	P	Diff.	Q	Diff.	R	Diff.	S	Diff.	T	Diff.
° ′										
32 50	7.9954225		9·9979559		2 37997		0 37458		0·07786	
		115		77		1		82		107
33 0	7·9954110		9 9979636		2 37996		0·37540		0·07679	
		115		77		2		83		106
33 10	7 9953995		9 9979713		2·37994		0·37623		0·07573	
		116		77		1		84		105
33 20	7 9953879		9 9979790		2·37993		0·37707		0·07468	
		115		77		1		84		104
33 30	7 9953764		9·9979867		2·37992		0·37791		0·07364	
		117		77		1		85		102
33 40	7·9953647		9·9979944		2·37991		0·37876		0·07262	
		116		78		1		85		101
33 50	7 9953531		9 9980022		2·37990		0·37961		0·07161	
		117		78		1		86		99
34 0	7·9953414		9 9980100		2 37989		0·38047		0·07062	
		117		78		2		86		99
34 10	7·9953297		9 9980178		2 37987		0·38133		0·06963	
		117		78		1		87		97
34 20	7·9953180		9 9980256		2·37986		0 38220		0 06866	
		118		78		1		87		96
34 30	7 9953062		9·9980334		2 37985		0·38307		0·06770	
		117		79		1		88		95
34 40	7·9952945		9 9980113		2·37984		0·38395		0·06675	
		118		79		1		88		94
34 50	7·9952827		9 9980492		2 37983		0 38483		0 06581	
		119		79		1		89		93
35 0	7 9952708		9 9980571		2 37982		0·38572		0 06488	
		118		79		2		90		91
35 10	7 9952590		9 9980650		2·37980		0·38662		0·06397	
		119		79		1		90		91
35 20	7 9952471		9·9980729		2 37979		0·38752		0·06306	
		119		79		1		90		89
35 30	7 9952352		9 9980805		2 37978		0·38842		0·06217	
		120		80		1		92		88
35 40	7·9952232		9·9980888		2 37977		0·38934		0·06129	
		119		79		1		91		87
35 50	7 9952113		9 9980967		2·37976		0·39025		0·06042	
		120		80		2		93		86
36 0	7 9951993		9·9981047		2 37974		0·39118		0·05956	

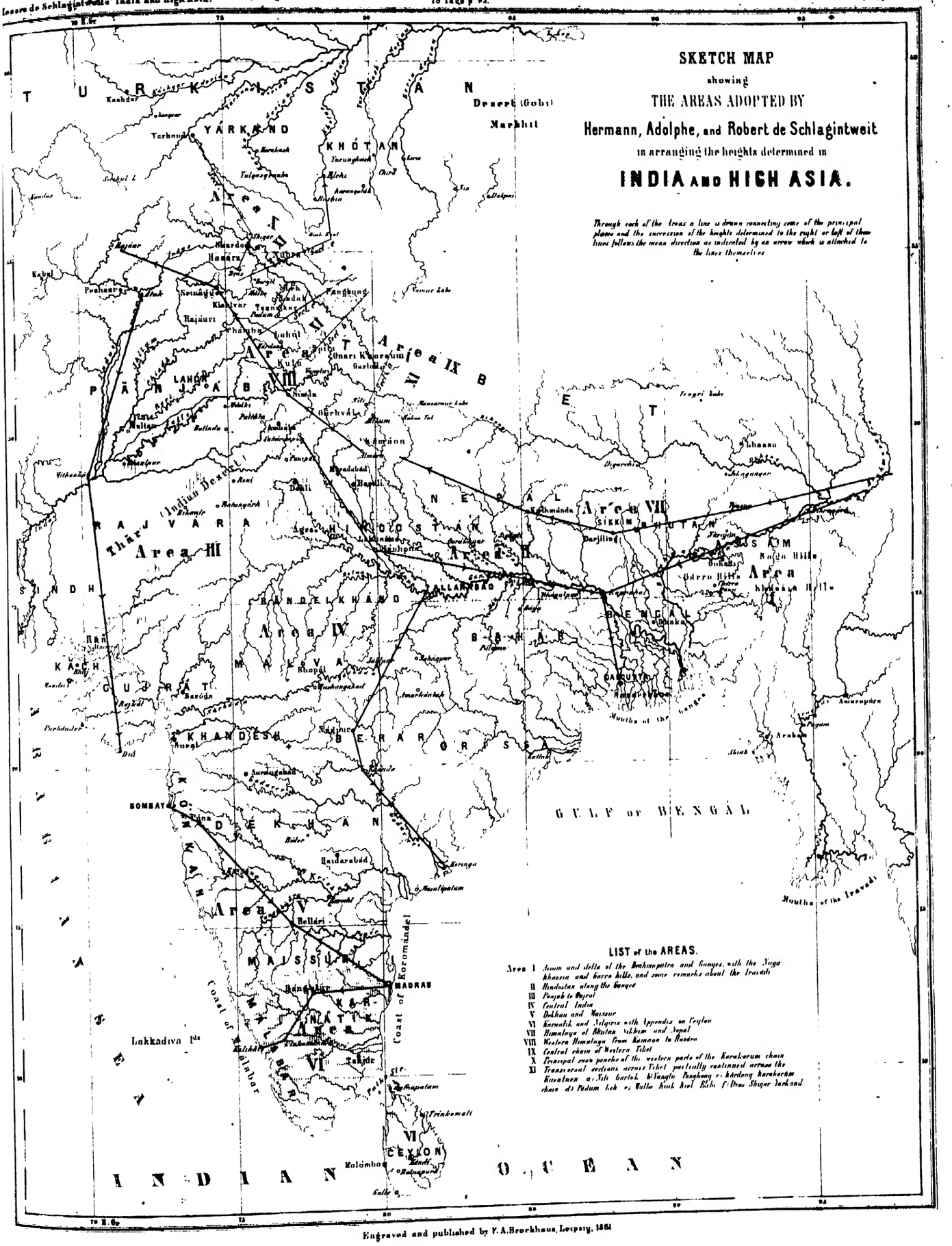
C. MAGNITUDE OF THE GIVEN AZIMUTH A.

The azimuthal arc is taken to commence from south, and to proceed by west and north round the whole circle of the horizon. The azimuth of west is 90°, that of north 180°, and lastly, that of east 270°.

Terms of the Formulæ.	1st Quadrant.	2nd Quadrant.	3rd Quadrant.	4th Quadrant.
$\delta_1 \lambda$	−	+	+	−
$\delta_1 L$	−	−	+	+
$\delta_1 A$	−	−	+	+
$\delta_2 \lambda$	−	−	−	−
$\delta_2 L$	+	−	+	−
$\delta_2 A$	+	−	+	−

PART II.

HEIGHTS DETERMINED IN INDIA.



Engraved and published by F. A. Brockhaus, Leipzig, 1861

In order to obtain a general hypsometrical tableau of the countries examined, we have divided India and High Asia into various areas, as shown on plate No. 3; through each of them a line is drawn, connecting some of the principal places, and the succession of the heights determined to the right or left of this line follows its mean direction as indicated by an arrow. This Index map contains the following areas, which we call meridional, longitudinal, diagonal, or transversal, according to the relative position of the leading lines.

Each area is preceded by general topographical remarks.

A. INDIA.

Area I. Assám and delta of the Brahmapútra and Ganges, with the Nága, Khassia, and Gárro hills, and some remarks about the Iravádi.
Longitudinal, from east to west: Brahmakúnd viâ Rajmahál to the Sanderbáns.

„ II. Hindostán along the Ganges. Longitudinal, from west to east: Saháranpur viâ Khánpur to Rajmahál.

„ III. Pănjáb to Gujrát. Meridional, from north to south: Átak viâ Mithánkot to Diu.

„ IV. Central India. Meridional, from north to south: from the Ganges viâ Nágpur and Chánda to Koríngа.

„ V. Dékhan and Maissúr. Diagonal, from north-west to south-east: Bombay viâ Púna and Bellári to Madras.

„ VI. Karnátik and Nílgiris, with an appendix on Ceylon. Longitudinal, from west to east: Madras viâ Bángalur and Utakamánd to Kalikát.

B. HIGH ASIA.

Area VII. Himálaya of Bhután, Sikkím, and Nepál. Longitudinal, from east to west: Bhután viâ Darjíling to west of Kathmándu.

„ VIII. Western Himálaya, from Kămáon to Hazára. Diagonal, from south-east to north-west: Almóra viâ Símla and Srinágger to Rajáur.

„ IX. Central chain of Western Tíbet. From south-east to north-west: east of the Mansaráur lake to Skárdo.

„ X. Principal snow peaks of the western parts of the Karakorúm chain. From east to west: east of the Namur lake to west of the lake Sirikúl.

„ XI. Transversal sections across Tíbet, partially continued across the Kuenlúen.

a. Níti — Gártok. *b*. Vángtu — Pangkóng. *c*. Kárdong — Karakorúm chain. *d*. Pádum — Leh. *e*. Múlbe — Kiúk Kiöl — Élchi. *f*. Dras — Shígar — Yárkand.

a — *e*, are diagonal lines from south-west to north-east, *f*, is a meridional line from south to north.

These lines are considered to be situated in the centre of an area, limited by half their mutual distance.

The general form in which the detail of our barometric observations is given within the respective areas, will be best seen from the following example (Area V., No. 20):

No. 20. Bhor Ghāt, Lat. N. 18° 44′, Long. E. Gr. 73° 22′, in the Dékhan.

3, Oertling. 1855, Jan. 2. *B* = Bombay. *C* = Púna.

8h 45m A.M. *A*. 28 131; 68·0; 77. *B*. 29 944; 70·0; 77. — 30. — 1,801. *C*. 28 142; 65 1; 64. = 1,795.

The "No." is merely given to facilitate later quotations. In each area the stations begin with No. 1.

The observation at the Bhōr Ghāt was taken 1855, January 2, 8h 45m A.M., with the barometer 3, Oertling. "*A*" indicates the station to be calculated. If a thermo-barometer is used, the degrees in Fahrenheit[1] are given instead of the barometric pressure. The instruments are corrected, and the barometers reduced to 32° Fahr. After the barometric pressure follows the temperature of the air in Fahrenheit, and the moisture, the degree of saturation being 100. The corresponding stations are either given in full, or marked *B. C. D.*

After the moisture at the corresponding station, the amount of the periodic correction (see p. 61) is given in feet, and then the absolute resulting height. The definitive absolute height is deduced from the mean of all observations. If the periodic correction is 0 throughout the corresponding stations, it is left out entirely. The designation of the instrument always refers to that used in the station to be determined, viz. station *A*; the instruments at the different corresponding stations are given pp. 40—44.

[1] The degrees can be easily reduced into the corresponding barometric pressure, expressed in inches, by reference to the table, pp. 80—83.

AREA I.

ASSÁM AND DELTA OF THE BRAHMAPÚTRA AND GANGES with the Nága, Khássia, and Gárro hills, and some remarks about the Iravádi.

Longitudinal from east to west: Brahmakúnd viâ Rajmahál to the Sanderbans.

In this area, many parts of which consist of wild and almost uninhabited districts, we have been able, in addition to our own observations (by Hermann and his establishment in 1855-6), to collect various materials for approximatively defining the general topography of these regions.

As the Brahmapútra and the Iravádi, the two principal rivers of this area, form at the same time its most prominent features, a descriptive sketch of their respective courses will, we hope, contribute to the completion of the general characteristics of these regions.

A. *The Brahmapútra.*

Assám, throughout its whole breadth, from the Khássia and Nága hills up to the southern foot of the Himálaya, was formerly the basin of a fresh-water lake, and is now drained by the Brahmapútra. This mighty river runs through the country from Brahmakúnd to Goalpára for a mean length, exclusive of its numerous small curves, of more than 400 miles.

The entire surface of Assám presents a gentle, uniform slope, with a few isolated granite hills, sometimes of no considerable mean elevation. The Brahmapútra nowhere presents any remarkable contraction of its bed, and the only rapid of importance is situated fifteen miles below its confluence with the Dihóng.

The level of the Brahmapútra at Sádia is 210 feet.

A little to the south of the entrance of the Tísta begins that part of the river where the stream branches off in the shape of a delta, and shortly joins that of the Ganges. The ebb and flood of the tide extend, in the season when the river is low.

upwards beyond Dháka; the fall from Sádia to the delta consequently amounting to half a foot per mile.

The determination of heights for single points of the river and its environs are contained in the special register of heights. Of these may be particularly mentioned the mountains of Lákimpur, which attain an elevation of 7,000 feet.

Sádia is situated near the spot where the most considerable of its affluents join the Brahmapútra, viz. the Dihóng (a river identical with the Tibetan Zámbu), into which, before its confluence with the Brahmapútra, flows the Dibóng.

A little to the north of this point the Digáru also disembogues itself into the Brahmapútra. Of the affluents on the left bank the Noh Dihíng deserves special mention.

The Brahmakúnd is a very deep basin-shaped enlargement of the river, just before it emerges from the mountains to descend into the plains of Assám.

The velocity of the current, which both above and below the Brahmakúnd is very great, suffers an unusual diminution at this point.

From here the terrain, at a short distance from the principal bed of the stream, begins to rise rapidly, and the fall of the tributaries, even down to their very junction with the main river, is very considerable. The Noh Dihíng has a curious fork-shaped partition, which possesses the greater interest in proportion to its comparative proximity to the sources of the river.[1] This region in particular was explored by Hermann's assistant, Lieutenant Adams, who also determined the height of several points. In this terrain there yet remain to be mentioned the heights of Dápla Búm, on the left bank of the river, and of the Thigritáya, on the right.

For the district of the sources of the Brahmapútra we have received the very interesting manuscript map of the missionaries Krick and Boury, who, following the course of the stream, penetrated through the wild regions inhabited by the Míshmis, and passed beyond the confines of Tíbet to the north-east of Sádia. Unhappily, on their second journey both of them were murdered at the settlement of Somtuán, a place situated five miles south of Sánggu (Lat. N. 28° 29′, Long. E. Gr. 97° 1′), the residence of one of the provincial governors of Tíbet.

Their map gives the course of the upper part of the Brahmapútra, and the point of junction of its various affluents, with far greater precision than the earlier one

[1] In the valley proper of Assám such ramifications are not unusual. As the largest of these I may mention the Bégang river, north of Bishnáth, the Dhansíri, in the Kuripára duár, &c.

for the same district so carefully prepared from native sources by Lieutenant Wilcox[1] (No. 138 of the Indian Atlas).

The sources of the Brahmapútra proper may be assigned to Lat. N. 33° — 32½°, and Long. E. Gr. 97° 30′. The first snow-covered mountains occur in Lat. N. 28¾°. The Brahmapútra is called by the Tibetans Záyö chu, after the province Záyö,[2] through which it flows,[3] the Míshmis and Singphos give it the name of Tálu Ka. Its direction as far as Lat. N. 27° 55′ is nearly due south, from the entrance of the Gálum river[4] to the Dū river north-west, and from this point to Sádia south-west.

Determinations of heights are not in existence for the course of the river above Assám.

B. *The Nága, Khássia, and Gárro Hills.*

Along the whole length of the left shore of the Brahmapútra, and nearly parallel to the broad valley through which it runs, we meet with a longitudinal range of

[1] The discovery, that the Dihóng enters the vale of Assám, and does not, as in Klaproth's map, discharge itself into the Iravádi, seems to have been the cause of too low an estimate being assigned for the size and water volume of the Brahmapútra. The Dihóng was generally considered as properly the upper course of the Brahmapútra, although the Brahmakúnd had been repeatedly reached since 1826, by Bedford, Jones, Wilcox, Bedingfield, and Neuville. Some of them had pushed forward even considerably beyond it. Wilcox penetrated 37 miles up the stream, Griffith had been 10 miles north of the Brahmakúnd in the year 1837, and Captain Rowlatt proceeded along the affluent Dū as far as Túpang, Lat. N. 28° 23′.

The journey of the French travellers Krick and Boury was preceded by that of the two Indian fakeers, who had pushed up the stream only a few miles farther than Wilcox, when they were murdered in the neighbourhood of the entrance of the Gálum river. Their intention was to reach, as the first, the actual sources of the Brahmapútra, an object of worship for the Hindus, since the Brahmakúnd had ceased to be regarded as such; and previous to their leaving Assám they communicated their intention to the authorities, so that some geographical communications at least, even if not very precise and well defined, might have been expected from them.

[2] The section of the river also which was executed, and its volume of water ascertained, by my establishment under Lieutenant Adams and Draughtsman Ábdul, at Sádia, confirmed the fact, that the Brahmapútra issues from the Záyö valley, and that in respect of volume of water, it is almost equal in size to the Dihóng. In Europe there are also many instances of the confluence of streams nearly equal in size and importance, where it would be very difficult to decide upon the name to be retained, if the direction of the valley were not allowed to determine the question.

[3] The confines of Tíbet on the Míshmi frontier are situated in Lat. N. 28° 2. Isolated villages and stations of the Tibetans in charge of Lamas extend the whole way. These places are tributary to Lhássa, — a relation apparently analogous to that existing along the commercial road, which runs through Bhután over Narigún and Táuong.

[4] It is characteristic of the course of mountain rivers, that important alterations in their direction very frequently coincide with the entrance of the larger affluents, and this because the same influences that affect the main valleys have exercised an equal effect upon the lateral valleys.

secondary hills, inhabited by the various scattered tribes of the Nágas, Khássias, Jáintias, and Gárros. We can present but comparatively meagre information about these mountains.

a. For the Nága hills south of Sibságer, I found, in the Assám Revenue Survey Office of Gohátti, a manuscript map by Thornton, prepared from surveys taken between the years 1839 and 1842, and which I was allowed to copy; in it were also included some heights obtained by a boiling-point thermometer. The height of the Malulhúpia pass is calculated from information obtained by my draughtsman Ábdul at Sibságer. The height of the Barél range is based upon data furnished by Major Butler. The Nága villages, like those of the Khássias, are usually situated, for the purposes of defence, on the top of dominating hills, or of minor but well protected prominences, and are surrounded by strong timber blockades. The inhabitants seem to avoid making a permanent settlement in the valleys.

b. The Khássia hills present in general the aspect of a well-defined plateau with comparatively small, isolated elevations. The plateau is terminated to the north by the valley of the Brahmapútra, to the south by that of the Súrma.

In addition to the barometrical observations, I (Hermann) made a special triangulation for the southern part of the Chérra hills, near the station of Chérra Púnji. The base line began on the east side of Mr. Inglis' house, and was continued to the second hill near the churchyard. The two points, both of which offered a very good view of the environs, were found to be 8,793 feet[1] distant from each other.

Besides the latitude, longitude, and height for Mópat peak, Mápeng summit, and Sararím peak, given below, I obtained the *distance* of the next crest, in an easterly direction from Chérra Púnji, referred to the point where it commences its steep descent to the plains. The breadth of this wide and deep depression in the southern border of the plateau was found to bear from Chérra Púnji S. 64° E., and to amount to 36,077 feet; the *mean* direction of the *crest* is from N. 8° 40′ W. to S. 8° 40′ E. In the few existing maps for the Khássia hills, the bearing is laid down in a northerly direction.

[1] The triangulation is laid down in one of our manuscript-maps, and the view from the southern point will form the special subject of one of the plates of our Atlas.

C. *The Iravádi.*

For the river system of the Iravádi, I (Hermann) received very important and interesting data from various officers residing in Assám; my acknowledgements being more particularly due to Colonel Hannay, Colonel Jenkins, and Major Vetch. During my stay at Dibrugárh, I was enabled to collect many of the routes taken by the Singpho tribe; but the list was greatly enlarged and completed during the excursions of my assistant,[1] Lieutenant Adams.

The main branch of the Iravádi, called the Nam Kyu, has its source in Lat. N. 27°·9, and in Long. E. Gr. 97°·7, amidst mountains, rising probably to a height of 17,000 feet. The snow limit in this district, as in the environs of the Upper Dihíng, scarcely descends below 13,000 feet. The springs are reported to be fed by large snow beds and a few glaciers.

The watershed between the Dihíng and the western affluents of the upper valley of the Iravádi is formed by snow-capped mountains, which, however, diminish in height towards the east. The summit of Phungalbúng, 17 miles E. of the watershed, is only 11,000 feet high.

The course of the Iravádi runs in an almost southerly direction as far as Lat. N. 27°, from whence it slightly diverges to the south-south-west. For that part of the river-district south of 25½° Lat. N., we have received from Colonel Hannay an exceedingly interesting river-chart on a scale of one inch to the mile, which contains some determinations of heights, as well as of latitudes and longitudes.

The course of the Nam Keng and Iravádi presents the following characteristics:

1. At the confluence of the Nam Keng and the Nam Yang rivers (Lat. N. 25° 20′ and Long. E. Gr. 95° 15′) the height amounts to 1,003 feet. To the right of the confluence at this point is situated Mógung Máyo, a large settlement of the Shans.

In their upper parts above the junction, the valleys of the Nam Keng and Nam Yang form, with reference to their mutual position, one large depression of longitudinal form, varying but little in direction from that of the principal vale of the Iravádi. The same forms again appear to the west of this river, in the uppermost parts of the water district of the Khyendvén.

[1] The detail of the Singpho routes will be given in the Topical Geography, Vol. III.

From the entrance of the Nam Yang downwards, the valley of the Nam Keng is generally very flat, and of some considerable width, and numerous marshy tracts appear on either side of the river. The average length of the Nam Keng, from the mouth of the Nam Yang down to its junction with the Iravádi at Kátkyo Náinmo, including the numerous curves,[1] amounts to 52 miles.

2. The Iravádi, from the entrance of the Nam Keng to Amarapúra, has a real length of 269 miles, from Amarapúra to the head of the delta at Sakkemún, 370 miles. The delta forms a triangle, nearly equilateral, with sides of 150 miles, the enclosed area consequently amounting to 9,742 square miles.

Towards Pégu and Sitán the Iravádi widens considerably, in consequence of the accession of the Pan lan river, and its limits become less sharply defined. The entire length from the source to the sea mouth is somewhat over 1,050 miles.

3. At Kyúk Kyk Yóva, the residence of Mum Yang vun (Lat. N. 25° 2′, Long. E. Gr. 96° 15′), the height of the river is 854 feet; at Chōkī Shue mut tho phya, two miles north of Amarapúra (Lat. N. 23° 4′, Long. E. Gr. 96° 15′), the height is 569 feet.

4. Longitudinal flats, the basins of former lakes, succeeding each other with little difference of height, but as distinct steps, and numerous narrows and rapids, form the especial characteristics of the Iravádi river bed, and essentially distinguish it from those of the Ganges and Brahmapútra. These contractions of the stream, or narrows, are called *drengs*. The last considerable one that occurs is formed by sandstone rocks, and lies only 40 miles above Amarapúra.

5. Of the mountains bordering the course of the Iravádi, the following may particularly be mentioned, although the heights ascribed to them are necessarily only approximations:

a. Upon the right bank of the Iravádi, the mountains opposite Than yun yova, in Lat. N. 24° 36½′, Long. E. Gr. 96° 31½′, have an average height of from 6,000 to 7,000 feet. One of the highest, the summit of which is visible from the valley, reaches apparently 8,000 feet.

[1] The length was measured by following the course of the river upon the map with a small wheel, that turned upon a screw with a side movement; the wheel was then drawn back in the opposite direction along a straight line, until it had reached the point of the screw from which it started, when the resulting straight line gave the measured length required.

b. Westward of Let pan zin Yóva, at a little distance from the right bank (Lat. N. 24° 27′ 2″, Long. E. Gr. 95° 56′ 15″), the summits of the mountains attain a height of 2,000 feet.

c. Heights of 800 and even 1,000 feet are also numerous on the right bank of the river, only 20 to 23 miles north of Shue mut tho phya (Lat. N. 23° 4′, Long. E. Gr. 96° 15′).

The character of the whole river district, including the elevations not above from 3,000 to 4,000 feet, presents a thoroughly tropical appearance.

The declivities of the hills, as well as the valley of the river, are covered with the wildest and most diversified vegetation, in the shape of dense tree and grass jungles. These jungles are sparsely populated by the almost savage tribes of Shans, Singphos, and other related races, who have made isolated and usually fortified clearings in the forests at the most unexpected places. Indeed, these clearings, where the trees have been burnt down, are the only cultivated spots of ground to be found in these parts.

Although the tribes, who are not nomadic in the usual sense of the word, remain a long time in the same places, yet circumstances, arising from the hostile disposition of the various tribes, often compel them to migrate in large numbers.

The villages on the banks of the Iravádi are much larger and the houses of a more solid construction. In the upper parts of its course are to be found single colonies of Assamese emigrants, and even far up the stream fortified Bĕrmese stations are met with.

1. ASSÁM, DELTA OF THE GANGES AND BRAHMAPÚTRA.

No. 1. PHUNGALBÚNG PEAK, 27° 28′; 97° 15′, in Assám, W. of the Brahmapútra.
Loc. *Top of the peak* . . . . . ab. 11,000 ft. Schl., A. O.

No. 2. DÁPLA BŪM PEAK, 27° 42′; 96° 42′, in Assám, the dominating peak, about 24 miles S.E. of the Brahmakúnd . . . . . 14,540 ft. Schl., A. O.

This peak is also interesting with reference to the physical geography of the country in which it is situated. Its summit may be assumed as 100 feet above the snow line, a height remarkably

low for this latitude. The peak remains covered with a thin, but well marked, stratum of snow throughout the year.

Loc. *Mean height of the snow line* . . . . . 14,450 ft. Schl., A. O.

No. 3. THIGRITÁYA PEAK, 28° 13′; 96° 6′, in Bhután, a peak near the origin of the Digáru river . . . . . ab. 13,500 ft. Schl., A. O.

No. 4. BÓRI AND NOH DIHÍNG SEPARATION, 27° 28′; 96° 6′, in Assám, in the territory of the Singphos.

Loc. *Level of the separation* . . . . . 1,273 ft. Schl., Herm.

6, Thermo-barom. 1856, May 21, 10^{h} A.M. *A.* 209°·63 Fahr., 77·4. Gohátti 29·693; 80·0; 84. — 12.

No. 5. SÁDIA, 27° 49′; 95° 38′, in Assám, on the right side of the Kundíl river, an affluent of the Brahmapútra near this place.

Loc. *Level of the Brahmapútra* . . . . . 210 ft. Schl., Lt. A.

No. 6. NÚNGPUNG, OR SALT WELL, 27° 3′; 95° 29′, in Assám, on the Báklu, an affluent of the Disáng.

Loc. *Level of Salt well* . . . . . 1,762 ft. Schl., Lt. A.

6, Thermo-barom. 1856, March 14, 10^{h} A.M. *A.* 209°·23 Fahr.; 64·0; 98. Gohátti 29·977; 74·5; 79. — 11.

No. 7. JÁIPUR, 27° 17′; 95° 21′, in Assám, on the left side of the Bóri Dihíng.

Loc. *Mean height of the village* . . . . . 1,140 ft. Schl., Lt. A.

6, Thermo-barom. 1856, May 3, 11^{h} 30^{m} A.M. *A.* 209°·80 Fahr.; 74·1; 88. Gohátti 29 693; 77 6; 88. — 36.

No. 8. LÁKIMPUR HILLS, 27° 21′; 94° 1′, in Assám, N. of Lákimpur, on the right side of the Brahmapútra, between the Londíri and Subansíri rivers.

Loc. 1) *Average height of the prominent peaks* . . . . . ab. 7,000 ft. P. C. Bruce.

The tops of these hills are just covered with snow in winter.

Loc. 2) *Lowest snow limit in winter* . . . . . 6,800 ft. P. C. Bruce.

No. 9. TÉZPUR, 26° 34′·6; 92° 46′·8 E, in Assám, on the right side of the Brahmapútra.

Loc. 1) *Commissioner's Circuit bángalo* . . . . . 278 ft. Schl., Herm.

1, Greiner. 1856, Jan. 22, 10^{h} A.M. *A.* 29·788; 57·4; 83. Gohátti 29·953; 61·9; 87. — 5 = 283
" " " 27, 10^{h} " " 29·764; 57·4; 85. " 29·916; 62·0; 91. — 3 = 273

Loc. 2) *Level of the Brahmapútra* . . . . . 117 ft. Schl., Herm.

By trigonometric measurement; 161 ft. below the Circuit bángalo.

Loc. 3) *Top of the bank of the Brahmapútra* . . . . . 199 ft. Schl., Herm.

By trigonometric measurement; 79 ft. below the Circuit bángalo.

Loc. 4) *Jail Yard* . . . . . 225 ft. Schl., Herm.

By trigonometric measurement; 108 ft. above the level of the Brahmapútra.

No. 10. UDELGÚRI, 26° 45′·7; 91° 56′·5 ⊢, in Assám, province of Dárrang, at the southern end of the road from Lhássa to Assám.

Loc. *Government cane house* . . . . . 350 ft. Schl., Herm.

1, Greiner. 1856, Jan. 3, 10h A.M. *A.* 29 733; 64·6; 73. Gohátti 29 984; 60·0; 93. — 5 = 365.
„ „ „ 5, 9h „ „ 27·7; 62·2; 81. „ 29 931; 61 7; 86. — 1 = 334.

No. 11. GOHÁTTI, 26° 5′·8; 91° 43′·8 ⊢, in Assám, a large station on the Brahmapútra, 69 miles E. of Goalpára.

Loc. 1) *Cistern of Dr. Simons' barometer* . . . . . 134 ft. Schl., Herm.

Loc. 2) *Level of the Brahmapútra* . . . . . 70 „ Schl., Herm.

The detail upon which these results are based is given p. 41.

Loc. 3) *Kamáikia temple* . . . . . 825 „ Schl., Herm.

1, Greiner. 1855, Nov. 21, 1h P.M. *A.* 29·190; 70·3. Gohátti 29 906; 71·2.

Loc. 4) *Highest point near Gohátti* . . . . . 1,002 ft. Schl., Herm.

1, Greiner. 1855, Nov. 21, 3h P.M. *A.* 28 981; 72·7. Gohátti 29·863; 73·4 = 993.
„ „ „ 3h „ „ 28·973; 70·7. „ 29 875; 72·9 = 1,010.

No. 12. JÁIRONG, 25° 57′; 91° 36′, in Assám, S.W. of Gohátti.

Loc. *Dāk bángalo* . . . . . 1,364 ft. Schl., Herm.

1, Greiner. 1855, Nov. 14 and 15.

h m			
5 30 P.M.	*A.* 28·520; 69 1; 87.	Calcutta 29·901; 79·1; 60	= 1,375.
8 45 „	„ 28·561; 62·6; 99.	„ 29·946; 71 4; 73	= 1,359.
7 20 A.M.	„ 28·575; 55·0; 99.	„ 29·971; 73 4; 65	= 1,359.

No. 13. SILIGÓRI, 26° 40′; 88° 22′, in Bengál, about 8 miles S.E. of Pankabári.

Loc. *Bángalo* . . . . . 302 ft. Hook.

No. 14. RANGAMÁLLI, 26° 37′; 88° 32′, in Bengál, on the right side of the Tísta.

Loc. *Mean height of the village* . . . . . 262 ft. Hook.

No. 15. DUMDÁNGI, 26° 28′·8; 88° 16′·6 ♁, in Bengál, district of Párnea.

Loc. *Tower Station, base* . . . . . 310 ft. G. T. S.

No. 16. KANCHABÁRI, 26° 27′·8; 88° 24′·5 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 318 ft. G. T. S.

No. 17. TITALÁYA, 26° 27′; 88° 20′, in Bengál, 45 miles S. of Darjíling.
Loc. *Mean height of the station* . . . . . 357 ft. Schl., Herm.
„ *Undefined* . . . . . 326 „ Hook.
1, Greiner. 1855, April 15, 10h A.M. *A.* 29·530; 82·0. Calcutta 29·873; 86·9.

No. 18. THAKURGÁNJ, 26° 25′·1; 88° 6′·8 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 263 ft. G. T. S.

No. 19. RAMGÁNJ, 26° 18′·9; 88° 16′·5 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 244 ft. G. T. S.

No. 20. SONAKHÓDA, 26° 15′·4; 88° 11′·1 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 220 ft. G. T. S.

No. 21. NIVÁNI, *T. S.*, 26° 15′; 88° 27′, in Bengál . . . 274 ft. G. T. S.

No. 22. KHARKÁRI, 26° 14′·2; 88° 1′·1 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 222 ft. G. T. S.

No. 23. BANDERJÚLA, 26° 11′; 87° 58′, in Bengál, 20 miles N. of Kissengánj.
Loc. *Tower Station* . . . . . 251 ft. G. T. S.

No. 24. KISSENGÁNJ, 26° 6′·0; 87° 56′·1 ⏄, in Bengál, district of Párnea, close to the Mahanádi.
Loc. *Mean height of the station* . . . . . 142 ft. Schl., Herm.
„ *ditto* . . . . . 131 „ Hook.
1, Greiner. 1855, Aug. 18, 10h A.M. *A.* 29·438; 84·0. Rámpur Bólea 29·524; 84·0.

No. 25. SANKRÓL, 25° 17′·5; 88° 18′·3 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 123 ft. G. T. S.

No. 26. ONÁLI, 24° 59′·9; 88° 15′·4 ⏄, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 159 ft. G. T. S.

No. 27. SILHÉT, 24° 53′·0; 91° 47′·1 ⏄, in Bengál, 120 miles N.E. of Dháka.
Loc. *Mr. Stainforth's house* . . . . . 133 ft. Hook.

No. 28. RÁMPUR BÓLEA, 24° 21′·8; 88° 34′·3, in Bengál, on the Pódda, one of the branches of the Ganges.

Loc. 1) *Mean height of the station* . . . . . 56 ft. Schl., Herm.

1, Greiner. 1855, Aug. 27, 9h A.M. *A.* 29·520; 82·9. Calcutta 29 558; 85 7.

Loc. 2) *Mr. Bell's bángalo* . . . . . 130 ft. Hook.

No. 29. NALÚNCHA, *H. S.*, 23° 54′·5; 87° 4′·7, in Bengál, near the Damúda, W. of Chandernagúr . . . . . 959 ft. G. T. S.

No. 30. DHÁKA, 23° 42′·7; 90° 20′·3, in Bengál, on the Bára Gánga, 150 miles N.E. of Calcutta.

Loc. *Mr. Atherton's bángalo* . . . . . 72 ft. Hook.

No. 31. BAHARINÁTH, 23° 34′·5; 86° 55′·7, in Bahár, 3 miles S. of the Damúda.

Loc. *Hill Station*. . . . . 1,469 ft. G. T. S.

No. 32. BÁLKI, 23° 28′·0; 87° 36′·0, in Bengál, 22 miles N.W. of Bardván.

Loc. *Tower Station* . . . . . 242 ft. G. T. S.

No. 33. SUSÍNIA, 23° 23′·8; 86° 58′·2, in Bengál, 10 miles N. of Bákúra.

Loc. *Hill Station*. . . . . 1,440 ft. G. T. S.

No. 34. KARASÓLI, 23° 14′·3; 87° 24′·4, in Bengál, 22 miles E. of Bákúra.

Loc. *Hill Station*. . . . . 325 ft. G. T. S.

No. 35. BÁRDVÁN, 23° 13′·2; 87° 48′·9, in Bahár, on the Grand Trunk road, 72 miles N.W. of Calcutta . . . . . 93 ft. Hook.

Loc. *Level of the railway* . . . . . 114 „ Ev.

No. 36. MÁDHPUR, 23° 9′·9; 87° 43′·6, in Bengál, 4 miles S. of the Damúda.

Loc. *Tower Station* . . . . . 173 ft. G. T. S.

No. 37. PÁNDUA, or PÉRUA, 23° 4′·5; 88° 16′·3, in Bengál, 38 miles N.W. of Calcutta.

Loc. *Level of the railway* . . . . . 58 ft. Ev.

No. 38. Akístepur, 23° 4′·2; 87° 55′·5 ⏚, in Bengál, 9 miles S. of Bărdván.

Loc. *Tower Station* . . . . . 125 ft. G. T. S.

No. 39. Gánjua, 22° 58′·5; 87° 32′·6 ⏚, in Bengál, 130 miles W. of Calcutta, near Rănigánj.

Loc. *Tower Station* . . . . . 193 ft. G. T. S.

No. 40. Mubarákpur, 22° 50′·5; 87° 46′·5 ⏚, in Bengál, 29 miles S. of Bărdván.

Loc. *Tower Station* . . . . . 123 ft. G. T. S

No. 41. Chandernagúr, 22° 50′; 88° 23′, in Bengál, a French settlement, 20 miles N. of Calcutta.

Loc. *Level of the railway* . . . . . 46 ft. Ev.

No. 42. Bóla, 22° 49′·5; 88° 10′·5 ⏚, in Bengál, 8 miles W.S.W. of Serampúr.

Loc. *Tower Station* . . . . . 101 ft. G. T. S.

No. 43. Serampúr, 22° 45′·4; 88° 19′·8 ⏚, in Bengál, on the right bank of the Húgli.

Loc. *Level of the railway* . . . . . 35 ft. Ev.

No. 44. Dilakás, *T. S.*, 22° 43′·1; 88° 0′·9 ⏚, in Bengál, on the Damúda, W.S.W. of Chandernagúr . . . . . 100 ft. G. T. S.

No. 45. Nóda, 22° 40′·2; 88° 21′·7 ⏚, in Bengál, 8 miles N. of Calcutta.

Loc. *Tower Station* . . . . . 96 ft. G. T. S.

No. 46. Níbria, 22° 35′·6; 88° 48′·6 ⏚, in Bengál, E. of Calcutta,

Loc. *Tower Station* . . . . . 100 ft. G. T. S.

No. 47. Calcutta, 22° 33′·0; 88° 20′·6 ⏚, in Bengál, on the Húgli.

Loc. *Cistern of barometer at the Surveyor General's Office* . . 18 ft. G. T. S.

No. 48. Chittagóng, or Islamabád, 22° 20′·5; 91° 44′·1 ⏚, in Bengál, 7 miles from the mouth of the river of the same name.

Loc. 1) *Mr. Sconce's house* . . . . . 191 ft. Hook.

„ 2) *Flag staff hill at south head of harbour* . . . . . 151 „ Hook.

No. 49. Levels of the East Indian Railway.[1]

These levels are all referred to the Howrah dock sill.

A. Ranigánj Line, communicated by Mr. Evans (see p. 6).			*B.* Rajmahál Line, communicated by Mr. Turnbull (see p. 6)		
Distance in Miles from Howrah.	Station.	Height.	Distance in Miles from Howrah.	Station.	Height.
		Feet.			Feet.
12	Serampúr	35	80	Guskára	153
20	Chandernagúr	46	99	Bálpur	196
38	Pándua, or Pérua	58	119	Sáintea	181
46	Boragárh	69	145	Nalhátti	139
49	Káisi	80	172	Srikúnd	132
54	Námu	91	189	Sitapahár hill	216
61	Sanktigárh	101	196	Tinpahár	146
66	Bárdván	114	205	Harrankhól	157
75	Junction with Rajmahál line	138	223	Teliagárhi	147
87	Khári Nálah	171	231	Siarmári	181
90	Mankúr	207	240	Kolgóng	174
97	Panigárh	236	261	Bhágalpur	154
103	Banskópa	229	279	Sultánganj	142
108	Támla Nálah	257	291	Mónghir Tunnel	389
117	Ándal	282	392	Patna	185
121	Ranigánj	319	440	Bíhia	212

II. NÁGA, KHÁSSIA, AND GÁRRO HILLS.

No. 50. Síma Peak, 26° 44′; 95° 9′, in the Nága hills, one of the highest points near the crest of the Nága Hills . . . . . ab. 5,000 ft. Schl., A. O.

No. 51. Jaboká, 26° 56′; 95° 4′, in the Nága hills, S.W. of Borhát, 7 miles E. of the Sáfri.

Loc. *Mean height of the village* . . . . . 2,880 ft. Schl., A. O

No. 52. Lakána, 26° 47′; 94° 56′, in the Nága hills, a village on a gently undulating plateau.

Loc. *Mean height of the village* . . . . . 2,840 ft. Schl., A. O

[1] The pamphlet "Guide to Places along the Railway from Howrah to Ranigánj", by Sanders, Cones, and Co., Calcutta, 1855, contains many an interesting detail, but no heights.

No. 53. JÁKTUNG PEAK, 26° 41′; 94° 47′, in the Nága hills, a marked prominence on the plateau . . . . . ab. 3,900 ft. Schl., A. O.

No. 54. TÁBLUNG PEAK, 26° 39′; 94° 45′, in the Nága hills, close to the bend in the course of the Díkho river . . . . . ab. 4,400 ft. Schl., A. O.

No. 55. NÁNGTA, 26° 40′; 94° 38′, in the Nága hills, the name of a fortified settlement of the Námsang Nágas.

Loc. *Mean height of the settlement* . . . . . 2,810 ft. Schl., A. O.

No. 56. UPPER NÁMSANG 26° 38′; 94° 37′, in the Nága hills, a fortified settlement of the Námsang Nágas.

Loc. *Mean height of the settlement* . . . . . ab. 2,500 ft. Schl., A. O.

No. 57. MALULHÚPIA PASS, 26° 19′; 94° 36′, in the Nága hills, a pass in the crest which forms the watershed between the Brahmapútra and Kuendóen ab. 5,400 ft. Schl., A. O.

No. 58. NÁMSANG, 26° 36′; 94° 34′, in the Nága hills, fortified settlements of the Námsang Nágas.

Loc. *Mean height of the settlement* . . . . . 2,825 ft. Schl., A. O.

No. 59. BARÉL RANGE, 25° to 25° 20′; 92° 45′ to 93° 15′, in the crest of the Nága hills, S. of Naugóng.

Loc. *Mean height of the crest* . . . . . 6,200 ft. Schl., A. O.

This range forms the watershed between the Dáyang river and the northern affluents of the Súrma, and is the political boundary between Kachár Proper and northern Kachár, a territory annexed in 1854.

No. 60. KADHÁTI HILL, 25° 7′; 92° 15,′ in the Jáintia hills, about 10 miles N. of the Súrma . . . . . 2,697 ft. Oldh.

No. 61. ROMBÁI, 25° 18′; 92° 11′, in the Jáintia hills, a village between Juvái and Lakadóng . . . . . 3,578 ft. Oldh.

No. 62. LAKADÓNG, 25° 12′; 92° 11′, in the Jáintia hills, N.N.W. of Kadháti hill.

Loc. *Undefined* . . . . . 2,294 ft. Oldh.

No. 63. NÁRTIANG, 25° 33′; 92° 10′, in the Jáintia hills, about 9 miles N. of Juvái.

Loc. *Mean height of the village* . . . . . 4,178 ft. Hook.

No. 64. MUSHÁI, 25° 28′; 92° 3′, in the Khássia hills, E.S.E. of Chíllong peak.

Loc. *Undefined* . . . . . 3,411 ft. Oldh.

„ „ . . . . . 4,863 „ Hook.

No. 65. PÓMRONG, 25° 30′; 91° 57, in the Khássia hills, E. of Nonkrím.

Loc. 1) *Undefined* . . . . . 4,748 ft. Oldh.

„ 2) „ . . . . . 5,143 „ Hook.

„ 3) *Kalapáni ridge to the south* . . . . . ab. 5,300 „ Oldh.

No. 66. NONKRÍM, 25° 30′; 91° 50′, in the Khássia hills, N. of Chérra Púnji.

Loc. *Undefined* . . . . . 5,406 ft. Oldh.

„ „ . . . . . 5,601 „ Hook.

No. 67. MÓPAT PEAK, 25° 18′·1; 91° 48′·2 F, in the Khássia hills, in the range N.E. of Chérra Púnji . . . . . 6,694 ft. Schl., Herm.

Trigonometrically measured from Chérra Púnji (see p. 98).

No. 68. LAILANGKÓT, 25° 28′; 91° 48′, in the Khássia hills, S. of Nankrín.

Loc. *Undefined* . . . . . 5,703 ft. Oldh.

No. 69. CHÍLLONG PEAK, 25° 32′; 91° 48′, in the Khássia hills, about 8 miles N.E. of Móflong . . . . . 6,662 ft. Hook. 6,124 ft. Oldh

No. 70. MAURINGRÍN, 25° 30′; 91° 43′, in the Khássia hills, a stone bench on the ridge N. of Chérra Púnji.

Loc. *Level of the stones* . . . . . 4,823 ft. Oldh.

No. 71. MÓPLANG, or MÓFLONG, 25° 28′; 91° 43′, in the Khássia hills, about 15 miles N. of the sanitarium of Chérra Púnji.

Loc. *Dak bángalo* . . . . . 6,078 ff. Schl., Herm

„ *ditto* . . . . . 6,062 „ Hook.

1, Greiner. 1855, Nov. 10, 6h A.M. *A.* 24 201; 48 9; 94. Calcutta 29 929; 76·5; 88 | 60

No. 72. MAHADÉO, 25° 12′; 91° 42′, in the Khássia hills, 2 miles N.E. of Báirong.

Loc. 1) *Guard house* . . . . . 2,188 ft. Oldh.
„ 2) *Top of a hill (Mahadéo rock)* . . . . . 2,623 „ Oldh.

No. 73. TÉRIA GHAT, 25° 11′; 91° 42′, in the Khássia hills, on the southern foot of the Khássia hills.

Loc. 1) *Undefined* . . . . . 128 ft. Oldh.
„ 2) *Level of fossil beds above Téria Ghat* . . . . . 352 „ Oldh.
„ 3) *Bottom of zig-zags, on road to Téria Ghat* . . . . . 1,428 „ Oldh.
„ 4) *Level ground below locality 3, sandstone abounding in shells* . . . . . 750 „ Oldh.

No. 74. MÓPEA, 25° 48′; 91° 42′, in the Khássia hills, N.E. of Nankláu.

Loc. *Level of Bor páni* . . . . . 2,528 ft. Schl., Herm.

1, Greiner. 1855, Nov. 14, 9^{h} A.M. *A.* 27 434; 53 1; 82. Calcutta 29 985; 73·3; 76.

No. 75. KALAPÁNI, 25° 23′; 91° 41′, in the Khássia hills, a bángalo N. of Chérra Púnji.

Loc. 1) *Bángalo* . . . . . 5,302 ft. Hook.
„ 2) *Kalapáni bridge* . . . . . 3,179 „ Oldh.

No. 76. TANGVÁI, 25° 11′; 91° 41′, in the Khássia hills, at the southern foot of the Khássia hills . . . . . 210 ft. Oldh.

No. 77. MÁPENG PEAK, 25° 16′·8; 91° 40′·9 ⊨, in the Khássia hills, a marked prominence in this ridge . . . . . 5,279 ft. Schl., Herm.

Trigonometrically measured from Chérra Púnji (see p. 98).

No. 78. CHÉRRA PÚNJI, 25° 14′·2; 91° 40′·5 ⊨, in the Khássia hills, a sanitarium.

Loc. 1) *Late Capt. Byng's bángalo* . . . . . 4,125 ft. Schl., Lt. A.

1, Greiner 1855, October, 10^{h} A.M. Periodic correction — 46 ft.

Date.	Chérra Púnji.	Gohátti.	Height.
Oct. 3	25·886; 70·5; 89	29·758; 78 5; 95	4,133
„ 5	25·881; 71·1; 71	29·700; 78·2; 95	4,116
„ 7	25·969; 70·5; 62	29 833; 77 5; 100	4,107
„ 8	25·961; 71·6; 69	29 838; 79 0; 100	4,133
„ 9	25 902; 72·3; 88	29 758; 79·2; 100	4,125
„ 11	25·898; 71·6; 87	29 743; 79 5; 87	4,115
„ 12	25·890; 72 9; 79	29·735; 80·1; 87	4,122
„ 13	25·937; 71·2; 84	29 799; 80 1; 87	4,125
„ 15	25·961; 69·6; 92	29·815; 75 5; 87	4,101
„ 16	25·941; 69·4; 75	29·814; 78·2; 87	4,119
„ 17	25·937; 70·2; 77	29·813; 77·6; 87	4,124
„ 18	25·941; 69·3; 67	29·832; 78·0; 87	4,135
„ 19	25 937; 68 2; 83	29 828; 78·0; 87	4,132
„ 20	25·961; 70·9; 74	29·846; 78 0; 87	4,133
„ 24	25·902; 68·2; 79	29 795; 76 1; 87	4 132
„ 25	25 953; 61·7; 82	29·854; 75 0; 87	4,100
„ 26	25·937; 65·8; 84	29·854; 74 6; 87	4,133
„ 27	25·906; 65 3; 87	29·822; 75 0; 87	4,136
„ 29	25·930; 69·6; 72	29·829; 75 0; 87	4,134
„ 30	25·914; 66·2; 68	29·816; 75 0; 87	4,125
„ 31	25·962; 65·5; 60	29·896; 74·0; 87	4,138

Loc. 2) *Prof. Oldham's bángalo* . . . . . 4,118 ft. Oldh.
„ 3) *Mr. Inglis' bángalo* . . . . . 4,069 „ Hook.
„ 4) *Bángalo opposite church* . . . . . ab. 4,200 „ Hook.
„ 5) *Native village of Chérra Púnji* . . . . . 4,397 to 4,572 „ Oldh.
„ 6) *Level of Assám road at toll house, N. of Chérra Púnji* 4,428 „ Oldh.

No. 79. BÁIRONG, 25° 12′; 91° 40′, in the Khássia hills, about 8 miles S. of Chérra Púnji . . . . . 1,242 ft. Oldh.

No. 80. MÁMLU, 25° 13′; 91° 39′, in the Khássia hills, 2 miles S.E. of Chérra Púnji.
Loc. 1) *Gate of village* . . . . . 3,852 ft. Oldh.
„ 2) *Top of greenstone under Mámlu* . . . . . 3,222 „ Oldh.
„ 3) *Jasper beds* . . . . . 2,384 „ Oldh.
„ 4) *Level of Dr. McClelland's "Fossil beach"* . . . . . 2,974 „ Oldh.

No. 81. SÁYONG, or SÓHIONG, 25° 31′; 91° 39′, in the Khássia hills, 15 miles S.E. of Kúllong rock.

Loc. 1) *Bángalo* . . . . . 5,695 ft. Schl., Herm.
„ *ditto* . . . . . 5,725 „ Hook.
1, Greiner. 1855, Nov. 10, 9h 15m A.M. *A.* 24 587; 57 2; 92. Calcutta 29·988; 77; 79·2.
„ 2) *Mean height of the native village* . . . . . 5,901 ft. Oldh.
„ 3) *Peak, S. of the bángalo* . . . . . 6,050 „ Hook.

No. 82. SARARÍM PEAK, 25° 18′·6; 91° 38′·4 P, in the Khássia hills, on the plateau of Chérra Púnji, near the village Sararím . . . . . 5,909 ft. Schl., Herm.
Trigonometrically measured from Chérra Púnji (see p. 98).

No. 83. NANKLÁU, 25° 38′·4; 91° 37′·6 P, in the Khássia hills, 10 miles N.E. of Kúllong rock.

Loc. 1) *Bángalo* . . . . . 4,661 ft. Schl., Herm.
„ *ditto* . . . . . 4,688 „ Hook.
1, Greiner. 1855, Nov. 12, 9h P.M. *A.* 25 477; 55 2; 84. Calcutta 30 018; 73 5; 72.
„ 2) *Level of suspension bridge over the Bóri páni, below Nankláu* . . . . . 2,380 ft. Oldh.
„ 3) *Level of Bóri páni at suspension bridge* . . . . . 2,339 „ Oldh.

No. 84. LÁIDOM, 25° 37′; 91° 36′, in the Khássia hills, 6 miles E. of Kúllong rock.
Loc. *Mean height of the village* . . . . . 5,205 ft. Oldh.

No. 85. MÁIRONG, 25° 34′; 91° 35′, in the Khássia hills, 9 miles S. of Nankláu.
Loc. 1) *Mean height of the village* . . . . . 5,628 ft. Schl., Herm.
1, Greiner. 1855, Nov. 10, 7h P.M. *A.* 24 567; 52·5; 93. Calcutta 29 921; 80 0; 66 = 5,621.
9h P.M. *A.* 24 580; 54 3; 89. „ 29 950; 77·1; 77 = 5,634.
Loc. 2) *Bángalo* . . . . . 5,537 ft. Oldh.

No. 86. CHÉLA, 25° 12′; 91° 35′, in the Khássia hills, near the embouchure of the Bóga páni, W. of Chérra Púnji.
Loc. *Level of the Bóga páni* . . . . . 80 ft. Hook.

No. 87. KÚLLONG ROCK, 25° 37′; 91° 30′, in the Khássia hills, N.W. of Chérra Púnji.
Loc. 1) *Top of the rock* . . . . . 5,684 ft. Oldh.
„ 2) *Level of top of knolls to the South* . . . . . 5,210 „ Oldh.
„ 3) *Monái village* . . . . . 5,067 „ Oldh.

No. 88. HARIGÁÕ HILL, 25° 35′·4; 91° 7′·0 E, in the Gárro hills, an isolated hill on the western margin of the Gárro hills, 21 miles distant from the left shore of the Brahmapútra.

Loc. *Top of the hill* . . . . . ab. 2,500 ft. Herm., A. O.

III. IRAVÁDI VALLEY.

No. 89. KYÚK KYK YÓVA, 25° 2′; 96° 15′, in Bérma, the residence of Mum Yang Mun. on the Iravádi.

Loc. *Level of the Iravádi* . . . . . 854 ft. Schl., A. O

No. 90. CHOKI SHUE MUT THO PHYA, 23° 4′; 96° 15′, in Bérma, 2 miles N. of Amarapúra.

Loc. *Level of the Iravádi* . . . . . 569 ft. Schl, A. O

No. 91. MÓGUNG MÁYO, 25° 20′; 95° 15′, in Bérma, near the confluence of the Nam Keng and Nam Yang rivers.

Loc. *Level of the confluence* . . . . . 1,003 ft. Schl., A. O

Appendix.

The following station is to be inserted between Nos. 7 and 8 (p. 102).

No. 92. DIBRUGÁRH, 27° 32′·0; 94° 57′·6 E, in Assám, a military station on the Brahmapútra.

Loc. *Shed, called "namgárh"*. . . . . 396 ft. Schl., Herm.

1, Greiner.	1855, Dec. 18, 10^{h} A.M.	*A.* 29·702;	59 9;	Gohátti	29 978;	60 4	394.
„	„ 20, 10^{h} A.M.	„ 29 707;	61·5;	„	29 980,	62 0 ±	389
„	„ 27, 10^{h} A.M.	„ 29·682;	59 5,	„	29 974:	60 4	406

AREA II.

HINDOSTÁN ALONG THE GANGES.

Longitudinal from west to east: Sahárunpur viâ Khánpur to Rajmahál.

The plain of the Ganges, or Hindostán Proper, occupies the principal part of this area. This plain, one of the largest and most fertile of India, has a remarkably uniform and gentle slope, even not interrupted by isolated rocky hills, as we meet them in the Brahmapútra valley.

To the north, Area II. is bounded by a longitudinal zone of hills of tertiary rocks at the foot of the Himálaya; the southern limits we have defined by the Bétva and Jámna rivers; in the western part, and in the eastern by the watershed of Bahár.

The great number of points accurately defined will be sufficient, without further explanation, to give an exact tableau of this extensive area.

No. 1. SAMÁNA, 29° 53′; 76° 56′, in Hindostán, N. of Kárnál . . . . . 934 ft. Ger.

No. 2. GHARÁNDA, 29° 32′; 76° 58′, in Hindostán, 10 miles S. of Kárnál. 945 ft. Ger.

No. 3. KÁRNÁL, 29° 42′·3; 76° 58′·3 ♁, in Hindostán, a large station 6 miles W. of the Jámna.

Loc. *Mean height of the cantonment* . . . . . 966 ft. Ger.

No. 4. PANIPÁT, 29° 23′; 76° 59′, in Hindostán, 78 miles N. of Déhli . 936 ft. Ger.

No. 5. SAMBHÁLKA, 29° 13′; 77° 1′, in Hindostán, 6 miles W. of the Jámna.

Loc. *Undefined* . . . . . 917 ft. Ger.

No. 6. SONIPÁT, 29° 0′; 77° 1′, in Hindostán, 8 miles W. of the Jámna. 887 ft. Ger

No. 7. GANÓR, 29° 6′; 77° 2′, in Hindostán, 10 miles N. of Sonipát . . . 917 ft. Ger

No. 8. NIRÁLA, 28° 50′; 77° 6′, in Hindostán, 6 miles W. of the Jámna . 869 ft. Ger.

No. 9. SHALIMÁR, 28° 41′; 77° 9′, in Hindostán, 6 miles N.N.W. of Déhli. 847 ft. Ger

No. 10. DÉHLI, 28° 38′·9; 77° 13′·1 ♁, in Hindostán, on the right side of the Jámna.

Loc. *Dák bángalo* . . . . . 827 ft. Schl., Rob.

„ *ditto* . . . . . 825 ft. Ger.

7, Thermo-barometer. 1856, March 11.

9h A.M. *A.* 29·158; 82·9; 50. Aligárh 29·229; 80·1; 59 = 82·1. Ambála 28·965; 79·0, 56·0 = 83·3

No. 11. BADÁRPUR, 28° 30′; 77° 18′, in Hindostán, 8 miles S. of Déhli. 868 ft. Ger

No. 12. BALÁBGARH, 28° 19′; 77° 19′, in Hindostán, 32 miles S. of Déhli. 835 ft. Ger

No. 13. PÁLVAL, 28° 8′; 77° 20′, in Hindostán, 40 miles S. of Déhli . . 774 ft. Ger.

No. 14. MÁTRÖL, 28° 2′; 77° 21′, in Hindostán, 50 miles S.S.E. of Déhli. 743 ft. Ger.

No. 15. SAHÁRANPUR, 29° 57′·2; 77° 28′·8 ♁, in Hindostán, a large station.

Loc. 1) *Belville, 1 mile S. of Saháranpur* . . . . . 980 ft. I. A 18.

„ *ditto* . . . . . 1,013 „ Herb. and Hodg.

„ 2) *Botanical gardens* . . . . . 1,002 „ Schl., Rob.

„ *ditto* . . . . . 965 ft. Jacq.

7, Thermo-barometer. 1856, March 14.

2h P.M. *A.* 310° 49 Fahr.; 87·3. Aligárh 29·276; 90·5 = 995. Ambála 29·016; 92·8 = 1,008

No. 16. CHÁTTA, 27° 43′; 77° 31′, in Hindostán, 12 miles S.W. of the Jámna. 734 ft. Ger.

No. 17. SIRDHÁNA, 29° 8′·8; 77° 36′·1 ♁, in Hindostán, 12 miles N.W. of Mráth.

Loc. *Undefined* . . . . . 882 ft. Thorn.

No. 18. FĂRIDNĂGGER, 28° 46′; 77° 38′, in Hindostán, 16 miles S. of Mírăth.
Loc. *Undefined* . . . . . 834 ft. Thorn.

No. 19. CHÁTI, 27° 33′; 77° 38′, in Hindostán, a small village 8 miles N.W. of Máthra.
Loc. *Mean height of the village* . . . . . 725 ft. Ger.

No. 20. MÁTHRA, 27° 30′·2; 77° 40′·3 ⨁, in Hindostán, on the right side of the Jámna, 35 miles N.W. of Ágra.
Loc. *Mean height of the cantonment* . . . . . 655 ft. Ger.

No. 21. MÍRĂTH, 29° 0′·7; 77° 41′·6 ⨁, in Hindostán, a large station.
Loc. *Mean height of the cantonment* . . . . . 859 ft. Schl., Rob.
6, Adie. 1855, Nov 19. *B* — Aligárh; *C* — Ambála.
12h 30m P.M. *A*. 29·205; 74 8; 31. *B*. 29 332; 75 0; 45. —7 867. *C*. 29 016; 74 1; 16. + 12 — 851.

No. 22. MOZĂFERNÁGGER, 29° 28′; 77° 43′, in Hindostán, situated in the duáb between the Jámna and the Ganges.
Loc. *Dak bángalo* . . . . . 902 ft. Schl., Rob.
7, Thermo-barometer. 1856, March 12. *B* — Ágra; *C* — Ambála; *D* — Aligárh.
11h 20m A.M. *A*. 29 186; 72 2; 27. *B*. 29 450; 76 0; —11 — 902. *C*. 29 018; 70 2; + 7 — 898
D. 29 369; 71 1; —10 — 919.
6, Adie. 1855, Nov. 18. *B* — Ágra; *C* — Aligárh; *D* — Ambála.
2h P.M. *A*. 29 001; 89 1; 38. *B*. 29 233; 100 4; —11 — 884. *C*. 29 170; 93 4; 35; — 9 — 914
D. 28 867; 93 4; 31 + 7 — 895.

No. 23, FÉRRA, 27°·19′; 77° 46′, in Hindostán, 2 miles W. of the Jámna.
Loc. *Mean height of the village* . . . . . 664 ft. Ger.

No. 24. GÓDNA, *T. S.*, 29° 37′·2; 77° 53′·1 ⨁, in Hindostán, 2 miles W. of the Ganges, S.W. of Hárdvár . . . . . 966 ft. G. T. S.

No. 25. DHÓLPUR, 26° 41′; 77° 54′, in Hindostán, 34 miles S. of Ágra, near the left bank of the Chámbál.
Loc. 1) *Dak bángalo* . . . . . 703 ft. Schl., Rob.
6, Adie. *B* — Ágra; *C* — Aligárh.
1855, Nov 30, 5h P.M. *A*. 29 520; 77·9; *B*. 29 573; 74 2; — 709. *C*. 29·477; 71 5; — 708
1855, Dec. 1, 9h A.M. *A*. 29·623; 53 6; *B*. 29 682; 64 0; — 702. *C*. 29·560; 59 5; — 691
Loc. 2) *Level of the Chámbál* . . . . . 492 ft. Schl., Rob.

6, Adie. 1855, Dec. 1. *B* = Dhólpur; *C* = Aligárh.

7h 30m A.M. *A*. 29·823; 47 1; —. *B*. 29·607; 50.2; — 6 = 506. *C*. 29 536; 55·2; — 8 = 477.

Loc. 3) *Flood-level of the Chámbál, E. of Dhólpur* . . . . . 458 ft. Ham.

No. 26. RÚRKI, 29° 53′; 77° 55′, in Hindostán, College of Civil Engineers, situated in the duáb between the Jámna and the Ganges.

Loc. *Thomason College* . . . . . 997 ft. Schl., Rob

6, Adie. 1855, Nov. 17, 2h 45m P.M. *B* = Ágra; *C* = Ambála; *D* = Aligárh.

A. 29 040; 76·6. *B*. 29·110; 79·7; — 13 = 1,010. *C*. 28·989; 77 2; + 2 = 977. *D*. 29 301; 78 3; 8 = 1,003.

No. 27. SIKÁNDRA, 27° 12′·9; 77° 56′·2 ♁, in Hindostán, 8 miles N.W. of Ágra.

Loc. *Mean height of the village* . . . . . 681 ft. Ger.

No. 28. SHEOPÚRI, 29° 18′·9; 77° 58′·6 ♁, in Hindostán, 6 miles W. of the Ganges.

Loc. *Tower Station* . . . . . 935 ft. G. T. S

No. 29. CHÓNDA, 26° 28′; 77° 59′, in Bándelkhánd, 10 miles S.E. of the Chámbal.

Loc. *Dak bángalo* . . . . . 721 ft. Schl., Rob.

6, Adie. 1855, Dec. 1. *B* = Ágra; *C* = Aligárh.

4h P.M. *A*. 29·532; 71·9; 22. *B*. 29·595; 72 1; 36. = 718. *C*. 29 501; 73·0; 53. 730

No. 30. ÁGRA, 27° 10′·2; 78° 1′·7 ♁, in Hindostán, a large station on the right bank of the Jámna.

Loc. 1) *Cistern of barometer in the Office of the Sec. to the Gov. N.W. Prov.* . . . . . 657 ft. Schl., Rob

1856, March 6. *B* = Ferozabád (see p. 42). Observers: at Ágra, Mr. O'Connor; at Ferozabád, Robert.

h			
9 A.M.	*A*. 29·465; 71·8.	*B*. 29 473; 76 6	= 653·3.
10 „	„ 29·461; 73 4.	„ 29 473, 80 6	= 657 3.
2 P.M.	„ 29·359; 81·0.	„ 29 371; 93·2	= 658 2.
3 „	„ 29·331; 82 4.	„ 29 317; 93 0	= 661·6.
4 „	„ 29 319; 82·8.	„ 29·327; 93 6	= 654·2.

Loc. 2) *Mean height of the cantonment* . . . . . 671 ft. Ger.

„ 3) *Level of the railway* . . . . . 565 ft. Ham.

No. 31. ALIGÁRH, 27° 53′·8; 78° 39 ♖, in Hindostán, a large station, 84 miles S.E. of Dehli.

Loc. *Cistern of Mr. C. Gubbins' barometer* . . . . . 750 ft. Schl., Rob

1856, January, at 10^h A.M.

Jan.	Aligarh.	Ágra.	Height.	Jan.	Aligárh.	Ágra.	Height.
1	29·497; 59·5	29·621; 63·9	774	17	29·517; 62·0	29·632; 65·4	766
2	29·497; 60·0	29·613; 64·1	767	18	29·504; 63·5	29·602; 65·7	750
3	29·483; 59·5	29·583; 64·2	752	19	29·488; 63·7	29·582; 68·1	747
4	29·491; 59·5	29·581; 66·7	742	20	29·572; 64·5	29·639; 69·7	721
5	29·412; 64·0	29·505; 65·7	746	21	29·537; 65·0	29·625; 68·7	741
6	29·459; 61·0	29·575; 65·9	767	22	29·489; 65·0	29·593; 65·4	756
7	29·544; 60·0	29·666; 61·6	772	23	29·456; 65·5	29·566; 65·2	762
8	29·519; 57·0	29·631; 61·0	763	24	29·441; 62·5	29·534; 64·6	742
9	29·597; 59·0	29·705; 63·1	759	25	29·471; 61·5	29·538; 65·0	721
10	29·613; 61·0	29·721; 64·2	759	26	29·431; 62·0	29·509; 65·2	731
11	29·573; 62·0	29·663; 67·7	743	27	29·422; 59·0	29·500; 61·9	731
12	29·527; 65·0	29·641; 67·2	766	28	29·411, 59·5	29·548; 59·7	755
13	29·501; 64·0	29·611; 66·8	759	29	29·407; 60·0	29·475; 62·7	721
14	29·530; 63·0	29·645, 65·9	766	30	29·423; 60·5	29·495; 60·2	725
15	29·526; 59·7	29·643; 60·8	758	31	29·396; 57·0	29·477; 56·2	733
16	29·580; 60·0	29·697; 62·1	767				

1856, February, at 10^h A.M.

Feb.							
1	29·427; 59·0	29·516; 58·2	741	17	29·492; 63·0	29·600; 67·7	760
2	29·466; 60·0	29·569; 60·5	755	18	29·472; 61·0	29·575; 67·5	755
4	29·467; 60·0	29·567; 63·7	752	19	29·498; 66·5	29·603, 68·2	758
5	29·449; 60·5	29·555; 63·6	758	20	29·509; 67·5	29·614; 70·5	758
6	29·500; 60·0	29·601; 66·7	753	21	29·471, 68·0	29·580; 68·7	762
7	29·473; 61·0	29·575; 65·7	754	22	29·417; 69·0	29·519; 73·7	756
8	29·426, 63·0	29·526; 68·6	752	23	29·409; 71·0	29·492; 73·6	737
9	29·392; 65·0	29·475; 69·7	737	24	29·393; 72·0	29·459; 74·5	722
10	29·374; 65·0	29·461; 70·0	744	25	29·338; 73·5	29·429; 75·4	746
11	29·361; 66·0	29·455; 70·2	718	26	29·379; 73·5	29·469; 74·7	745
12	29·323; 69·5	29·412; 71·2	743	27	29·312; 69·0	29·434; 70·7	746
13	29·278; 69·5	29·363; 73·1	740	28	29·373; 68·0	29·476; 70·9	756
14	29·430; 67·0	29·521; 69·7	714	29	29·414; 71·5	29·543; 73·2	752
15	29·433; 61·0	29·527; 66·7	747	In a private communication, Mr. Gubbins gives, as the height of his barometer: about 760 feet.			
16	29·462, 62·2	29·559; 61·9	749				

No. 32. Mahesári, *T. S.*, 29° 30′·2; 78° 7′·9 ♄, in Hindostán, 3 miles E. of the Ganges, S. of Hárdvár . . . . . ·885 ft. G.T.S.

No. 33. HALDÁUR, 29° 16′·6; 78° 15′·1 ⏚, in Hindostán, 3 miles E. of the Ganges.
Loc. *Tower Station* . . . . . 874 ft. G.T.S.

No. 34. LUT, *T. S.*, 28° 53′·6; 78° 17′·5 ⏚, in Hindostán. 787 ft. G.T.S.

No. 35. CHANDÁNPUR, 28° 33′·9; 78° 17′·6 ⏚, in Hindostán, 8 miles E. of the Ganges.
Loc. *Tower Station* . . . . . 721 ft. G.T.S.

No. 36. PARÁULI, 28° 9′·7; 78° 20′·1 ⏚, in Hindostán, 5 miles W. of the Ganges.
Loc. *Tower Station* . . . . . 720 ft. G.T.S.

No. 37. PINÁTH, *T. S.*, 26° 52′·6; 78° 21′·6 ⏚, in Bandelkhánd, on the left side of the Chámbál, S.W. of Agra . . . . . 675 ft. G.T.S.

No. 38. FEROZABÁD, 27° 8′·6; 78° 22′·1 ⏚, in Hindostán, 26 miles E.S.E. of Ágra.
Loc. *Tower Station, base* . . . . . 646 ft. G.T.S.

No. 39. PÁNDRI, 27° 27′·8; 78° 23′·4 ⏚, in Hindostán, 80 miles W. of Farrukhabad.
Loc. *Tower Station* . . . . . 731 ft. G.T.S

No. 40. KUNDÚRKI, 28° 43′·5; 78° 23′·6 ⏚, in Hindostán, near the Ganges.
Loc. *Tower Station* . . . . . 761 ft. G.T.S

No. 41. RAJÁULI, 28° 22′·4; 78° 24′·3 ⏚, in Hindostán, 3 miles E. of the Ganges.
Loc. *Tower Station* . . . . . 701 ft. G.T.S

No. 42. MÍLIK, 29° 4′·6; 78° 24′·5 ⏚, in Hindostán, 14 miles W. of the Ramgánga.
Loc. *Tower Station* . . . . . 812 ft. G.T.S

No. 43. SÁLEMPUR, 27° 46′·5; 78° 29′·9 ⏚, in Hindostán, 15 miles W. of Patiáli.
Loc. *Tower Station* . . . . . 732 ft. G.T.S.

No. 44. GÚRMI, *T. S.*, 26° 36′·0; 78° 29′·9 ⏚, in Bándelkhánd, in an open plain, 10 miles S. of the Chámbăl . . . . . 661 ft. G.T.S

No. 45. Bansgopál, 28° 33′·4′; 78° 31′·0 ⏚, in Hindostán, 28 miles S.W. of Muradabád.
Loc. *Tower Station* . . . . . 750 ft. G.T.S.

No. 46. Sírsa, 28° 54′·6; 78° 31′·1 ⏚, in Hindostán, 16 miles W.N.W. of Muradabád.
Loc. *Tower Station* . . . . . 810 ft. G.T.S.

No. 47. Sankráu, 28° 2′·4; 78° 31′·1 ⏚, in Hindostán, 2 miles S. of the Ganges.
Loc. *Tower Station* . . . . . 753 ft. G.T.S.

No. 48. Sarkára, 29° 15′·7; 78° 31′·4 ⏚, in Hindostán, 8 miles W. of the Ramgánga.
Loc. *Tower Station* . . . . . 831 ft. G.T.S.

No. 49. Sakróra, 28° 13′·1; 78° 32′·3 ⏚, in Hindostán, 6 miles N.E. of the Ganges.
Loc. *Tower Station* . . . . . 692 ft. G.T.S.

No. 50. Atóra, 28° 42′·6; 78° 36′·3 ⏚, in Hindostán, 14 miles S.W. of Muradabád.
Loc. *Tower Station* . . . . . 763 ft. G.T.S.

No. 51. Akbárpur, 29° 4′·9; 78° 37′·4 ⏚, in Hindostán, 2 miles W. of the Ramgánga.
Loc. *Tower Station* . . . . . 788 ft. G.T.S.

No. 52. Métra, 28° 22′·0; 78° 38′·0 ⏚, in Hindostán, 4 miles N. of Islamnágger.
Loc. *Tower Station* . . . . . 727 ft. G.T.S.

No. 53. Shérpur, 27° 0′·6; 78° 38′·1 ⏚, in Hindostán, 35 miles W.S.W. of Mainpúri.
Loc. *Tower Station* . . . . . 665 ft. G.T.S.

No. 54. Baragáũ, 27° 15′·0; 78° 41′·3 ⏚, in Hindostán, 24 miles W. of Mainpúri.
Loc. *Tower Station* . . . . . 708 ft. G.T.S.

No. 55. Athgáth, *T.S.*, 26° 47′·9; 78° 41′·6 ⏚, in Bándelkhánd, on the left side of the Chámbál . . . . . 663 ft. G.T.S.

No. 56. Bhatáuli, 28° 53′·9; 78° 42′·6 ⏚, in Hindostán, 12 miles N.W. of Muradabád.
Loc. *Tower Station* . . . . . 758 ft. G.T.S.

No. 57. SARSÓTHA, 28° 5′·9; 78° 44′·3 ♁, in Hindostán, 8 miles N. of the Ganges.
Loc. *Tower Station* . . . . . 688 ft. G. T. S.

No. 58. BARÁULI, 28° 32′·0; 78° 44′·5 ♁, in Hindostán, 28 miles S.S.W. of Muradabád.
Loc. *Tower Station* . . . . . 723 ft. G. T. S.

No. 59. KARIÁMI, 28° 15′·1; 78° 44′·6 ♁, in Hindostán.
Loc. *Tower Station* . . . . . 702 ft. G. T. S.

No. 60. KILARMÁU, 27° 33′·1; 78° 45′·5 ♁, in Hindostán, 24 miles S.E. of Patiáli.
Loc. *Tower Station* . . . . . 694 ft. G. T. S

No. 61. NÁNDI, 29° 17′·0; 78° 45′·6 ♁, in Hindostán, 3 miles E. of the Ramgánga.
Loc. *Tower Station* . . . . . 840 ft. G. T. S.

No. 62. BHIND, *T. S.*, 26° 33′·5; 78° 46′·8 ♁, in Bándelkhánd, in an open plain, 8 miles W. of Akóra . . . . . 648 ft. G. T. S.

No. 63. JAMÁLPUR, 27° 48′·1; 78° 48′·2, in Hindostán, 18 miles N.W. of Patiáli.
Loc. *Tower Station* . . . . . 685 ft. G. T. S.

No. 64. RÁMPUR, 28° 47′; 79° 3′, in Hindostán, on the left bank of the Kosílla, E. of Muradabád.
Loc. *Dák bángalo* . . . . . 715 ft. Schl, Rob.

2, Pistor. 1855, April 15. *B* = Ágra; *C* = Alygarh.

h m			
8 30 A.M.	*A.* 29·233; 73 4; 69		*C.* 29·229; 74 3; − 746
10 50 „	„ 29·256; 79·9; 52	*B.* 29 264; 80 1; − 664	„ 29·237; 79 0, 730
4 30 P.M.	„ 29·166; 83·8; 36	„ 29 205; 81 3; − 697	„ 29·154; 88 9; − 738

No. 65. KÁNVA, 26° 4′·6; 79° 15′·5 ♁, in Hindostán, 8 miles S.W. of Jaláun.
Loc. *Tower Station* . . . . . 607 ft. G. T. S.

No. 66. FÁTIHGÁNJ, 28° 27′·4; 79° 17′·7 ♁, in Hindostán, 10 miles N.W. of Baréli.
Loc. *Tower Station* . . . . . 628 ft. G. T. S.

No. 67. Sisgárh, 28° 43′·6; 79° 17′·9 ⏚, in Hindostán.

Loc. *Tower Station* . . . . . 692 ft. G. T. S.

No. 68. Husapúra, 26° 21′·7; 79° 18′·1 ⏚, in Bándelkhánd, 3 miles S. of the Jámna.

Loc. *Tower Station* . . . . . 563 ft. G. T. S.

No. 69. Bagvára, 28° 58′·9; 79° 18′·5 ⏚, in Hindostán, 6 miles S.E. of Gádárpur.

Loc. *Tower Station* . . . . . 813 ft. G. T. S.

No. 70. Átsu, 26° 35′·3; 79° 20′·2 ⏚, in Hindostán, 30 miles S.E. of Étava.

Loc. *Tower Station* . . . . . 584 ft. G. T. S.

No. 71. Bikóna, 26° 51′·0; 79° 21′·1 ⏚, in Hindostán, 30 miles E.N.E. of Étava.

Loc. *Tower Station* . . . . . 594 ft. G. T. S.

No. 72. Baréli, 28° 22′·2; 79° 23′·2 ⏚, in Hindostán, a large station, 152 miles E. of Déhli.

Loc. *Mean height of the Cantonment* . . . . . 693 ft. Schl., Rob.

Observers: at Baréli, Dr. Arthur Payne; at Ágra, Mr. O'Connor. 1855, Sept., at 10^{h} A.M.

Sept.	Baréli.	Ágra.	Height.	Sept.	Baréli.	Ágra.	Height.
			Feet				Feet.
1	29·113; 93·5	29 138; 92·8	681	19	29 113; 77·5	29 150; 80·8	694
2	29·085; 96·5	29·115; 93 2	688	20	29·100; 90 0	29 162; 82 8	721
3	29 169; 86 0	29·178; 88·2	665	21	29 188; 90 0	29·252; 83 1	721
4	29·174; 88 5	29·201; 85 6	685	22	29 265; 90·5	29·315; 83·7	707
5	29 142; 91·0	29·205; 88·2	721	23	29·235; 92 0	29·256; 84·7	679
7	29 136; 90·5	29·146; 86 2	667	24	29·238; 83·5	29·268; 87·1	687
10	29·129; 89·5	29·134; 86·2	661	25	29 265; 87 0	29·301; 87·6	697
12	29·104; 76 0	29·158; 82 8	712	26	29 310; 84 5	29·359; 86·5	706
13	29 186; 81 0	29·221; 79 5	693	28	29 263; 84 0	29·327; 88·2	721
15	29 216; 87·5	29·225; 82 2	666	29	29·297; 86·0	29·351; 86·7	711
17	29·124; 84·0	29·170; 81 9	701	30	29 301; 87 5	29·319; 86·9	675
18	29 128; 84 0	29 138; 87·3	667				

No. 73. Janjíri, 28° 10′·8; 79° 23′·3 ⏚, in Hindostán, on the right side of the Ganges.

Loc. *Tower Station* . . . . . 606 ft. G. T. S.

No. 74. SÁIPUR, *T. S.*, 27° 54′·9; 79° 23′·7, in Hindostán, near the right side of the Ramgánga . . . . . 567 ft. G. T. S

No. 75. BISANGÁRH, 27° 6′·5; 79° 23′·8, in Hindostán, 25 miles S.W.S. of Farrukhabád.
Loc. *Tower Station* . . . . . 586 ft. G. T. S

No. 76. POTHÁRI, 27° 23′·2; 79° 23′·9, in Hindostán, 10 miles W. of Farrukhabád.
Loc. *Tower Station* . . . . . 609 ft. G. T. S.

No. 77. MAMDABÁD, 27° 18′·3; 79° 24′·7, in Hindostán, 18 miles W.S.W. of Farrukhabád.
Loc. *Tower Station* . . . . . 603 ft. G. T. S.

No. 78. GÚRI, *T. S.*, 27° 40′·0; 79° 25′·3, in Hindostán, N. of Farrukhabád, on the left side of the Ganges . . . . . 565 ft. G. T. S

No. 79. GÁURA, 25° 57′·7; 79° 32′·8, in Bandelkhánd, 31 miles S.E. of Jaláun.
Loc. *Tower Station* . . . . . 547 ft. G. T. S

No. 80. ATARÍA, 28° 38′·1; 79° 34′·3, in Hindostán, 15 miles W. of Pilibít.
Loc. *Tower Station* . . . . . 678 ft. G. T. S

No. 81. NIPÉNIA, 26° 13′·5; 79° 34′·5, in Bándelkhánd, 10 miles N.W. of Kálpi.
Loc. *Tower Station* . . . . . 542 ft. G. T. S.

No. 82. SEONTÁRA, 26° 42′·4; 79° 34′·6, in Hindostán, near Rássulabád.
Loc. *Tower Station* . . . . . 573 ft. G. T. S.

No. 83. GANDÁSPUR, 26° 28′·5; 79° 34′·9, in Hindostán, 60 miles S.E. of Étava.
Loc. *Tower Station* . . . . . 542 ft. G. T. S.

No. 84. BEHÉRI, 28° 51′·8; 79° 34′·9, in Hindostán, a few miles S. of the Tarái.
Loc. *Tower Station* . . . . . 702 ft. G. T. S.

No. 85. FÄTIHGÁRH, or FÄRRUKHABÁD, 27° 23′·3; 79° 37′·0 ⊥, in Hindostán, a large town on the right side of the Ganges, 90 miles E. of Ágra.

Loc. 1) *Dak bángalo* . . . . . 635 ft. Schl., Rob.

6, Adie. 1855. B = Ágra; C = Aligárh.

April 11, 10h A.M.	*A.* 29 414; 83·5; 35	*B.* 29 441; 83·1; — 1 = 683	*C.* 29·264; 82·9; + 3 = 604
„ 12, 10h „	„ 29·485; 79·3; 40	„ 29 469; 80·8; 0 = 642	„ 29·343; 82·6; + 3 = 613

Loc. 2) *Level of the Ganges of Fätigárh* . . . . . 505 ft. Schl., Rob.

= 130 ft. below the dak bángalo; by aneroid.

No. 86. GAJNÉRA, 28° 20′·0; 79° 37′·6 ⊥, in Hindostán, 15 miles S.E. of Baréli.

Loc. *Tower Station* . . . . . 652 ft. G. T. S.

No. 87. KÚLSAN, 26° 57′·1; 79° 37′·7 ⊥, in Hindostán, 45 miles S. of Färrukhabád.

Loc. *Tower Station* . . . . . 574 ft. G. T. S.

No. 88. CHANDÁNPUR, *T. S.*, 27° 13′·5; 79° 38′·1 ⊥, in Hindostán, on the right side of the Ganges, S. of Färrukhabád . . . . . 551 ft. G. T. S.

No. 89. KÁSRAK, 28° 3′·3; 79° 38′·8 ⊥, in Hindostán, 4 miles N.W. of Miránpur.

Loc. *Tower Station* . . . . . 633 ft. G. T. S.

No. 90. MÁU, *T. S.*, 27° 30′·0; 79° 39′·7 ⊥, in Hindostán, on the left side of the Ramgánga, N.E. of Färrukhabád . . . . . 552 ft. G. T. S.

No. 91. DHÁKA, 27° 44′·9; 79° 40′·0 ⊥, in Hindostán, 9 miles E. of the Ramgánga.

Loc. *Tower Station* . . . . . 565 ft. G. T. S.

No. 92. MIRÁNPUR, 28° 2′; 79° 41′, in Hindostán, 5 miles E. of the Ganges.

Loc. *Mean height of the village* . . . . . 588 ft. Schl., Rob.

2, Pistor. 1855, April 13. B = Ágra; C = Aligárh.

10h A.M. *A.* 29 453; 78·4; 48. *B.* 29·382; 71·7. + 1 = 588. *C.* 29·284; 75 9. + 3 = 587.

No. 93. KALIÁNPUR, 28° 35′·1; 79° 43′·6 ⊥, in Hindostán.

Loc. *Tower Station* . . . . . 724 ft. G. T. S.

No. 94. DONÁU, 28° 22′·8; 79° 44′·6 ⊥, in Hindostán.

Loc. *Tower Station* . . . . . 745 ft. G. T. S.

No. 95. Úmra, 28° 28′·6; 79° 51′·8 ⅄, in Hindostán, 14 miles S. of Pilibít.

Loc. *Tower Station* . . . . . 708 ft. G. T. S.

No. 96. Kainkéra, 28° 37′·4; 79° 52′·0 ⅄, in Hindostán.

Loc. *Tower Station* . . . . . 730 ft. G. T. S.

No. 97. Shahgárh, 28° 33′·2; 80° 0′·5 ⅄, in Hindostán, 20 miles S.E. of Pilibít.

Loc. *Tower Station* . . . . . 740 ft. G. T. S.

No. 98. Semráu, 28° 22′·7; 80° 0′·9 ⅄, in Hindostán, 26 miles S.E. of Pilibít.

Loc. *Tower Station* . . . . . 692 ft. G. T. S.

No. 99. Púra, 26° 45′; 80° 7′, in Hindostán, on the right side of the Ganges, 25 miles N.W. of Kánhpur (Cawnpore).

Loc. *Dāk bángalo* . . . . . 549 ft. Schl., Rob

6, Adie. 1855, April 10. *B* = Ágra; *C* = Aligárh.

8h A.M.	*A*. 29 426; 78·4; 38		*C*. 29 225; 79 9; − 4 548
9h „	„ 29·449; 88 3; 26	*B*. 29 355; 91·2; − 562	„ 29 237; 82·9; 0 - 537

No. 100. Pipería, 28° 19′·6; 80° 9′·7 ⅄, in Hindostán, 36 miles S.E. of Pilibít.

Loc. *Tower Station* . . . . . 678 ft. G. T. S

No. 101. Údepur, 28° 28′·5; 80° 9′·8 ⅄, in Hindostán, 28 miles S.E. of Pilibít.

Loc. *Tower Station* . . . . . 702 ft. G. T. S.

No. 102. Hamírpur, 25° 58′; 80° 12′, in Bandelkhánd, 39 miles S. of Kánhpur (Cawnpore).

Loc. *Mean height of the station* . . . . . 645 ft. P. C.

No. 103. Dervarsán, 26° 15′·9; 80° 17′·3 ⅄, in Hindostán, 20 miles W. of the Ganges.

Loc. *Tower Station* . . . . . 493 ft. G. T. S.

No. 104. Karái, *T. S.*, 28° 15′·9; 80° 17′·5 ⅄, in Hindostán, 12 miles S.W. of Ambargárh station . . . . . 666 ft. G. T. S.

No. 105. Sultánpur, *T. S.*, 28° 25′·1; 80° 17′·8 ⅄, in Hindostán, 6 miles W. of the Sárju, or Ghágra . . . . . 691 ft. G. T. S

No. 106. KÁNHPÚR (CAWNPORE), 26° 28′·3; 80° 20′·3, in Hindostán, a large station on the right bank of the Ganges.

Loc. 1) *Hôtel* . . . . . 525 ft. Schl., Herm.

1, Greiner. 1856, April 10, 3h 30m P.M. *A.* 29·268; 86·2. Ágra 29·134; 100·6; + 5.

Loc. 2) *Level of the Ganges* . . . . . 403 ft. Schl., Herm.

Trigonometrically measured.

No. 107. JEHANABÁD, 26° 6′·0; 80° 20′·9, in Hindostán, 20 miles N.E. of Hamírpur.

Loc. *Tower Station* . . . . . 488 ft. G. T. S.

No. 108. JAJMÁU, 26° 25′·8; 80° 23′·7, in Hindostán, 2 miles S. of Kánhpur (Cawnpore).

Loc. *Tower Station* . . . . . 516 ft. G. T. S.

No. 109. KANAKÉRA, *T. S.*, 25° 51′·3; 80° 24′·6, in Bándelkhánd, between Hamírpur and Fátihpur . . . . . 474 ft. G. T. S.

No. 110. RÁU, *T. S.*, 26° 38′·6; 80° 26′·2, in Hindostán, 3 miles E. of the Ganges, N. of Kánhpur (Cawnpore) . . . . . 494 ft. G. T. S.

No. 111. JERÚRA, 27° 59′·9; 80° 27′·2, in Hindostán, 14 miles S.W. of Aligánj.

Loc. *Tower Station* . . . . . 579 ft. G. T. S.

No. 112. KÓKRA, 28° 12′·1; 80° 27′·2, in Hindostán, 6 miles N.W. of Aligánj.

Loc. *Tower Station* . . . . . 633 ft. G. T. S.

No. 113. RAMUAPÚR, *T. S.*, 28° 22′·6; 80° 27′·7, in Hindostán, 5 miles S. of Ambargárh station, and 2 miles W. of the Sárju, or Ghágra . . . . . 653 ft. G. T. S.

No. 114. ÁSU, 26° 4′·6; 80° 27′·8, in Hindostán, 18 miles W. of the Ganges.

Loc. *Tower Station* . . . . . 523 ft. G. T. S.

No. 115. DURAVÁL, 27° 33′·5; 80° 27′·9, in Hindostán, 28 miles W.N.W. of Kairabád.

Loc. *Tower Station* . . . . . 544 ft. G. T. S.

No. 116. NIMKÁR, *T. S.*, 27° 21′·1; 80° 28′·1, in Hindostán, on the left side of the Gúmti . . . . . 528 ft. G. T. S.

No. 117. RAKSÉRIA, 26° 50′·8; 80° 28′·5 ♁, in Hindostán, 25 miles E. of the Ganges.
Loc. *Tower Station* . . . . . 476 ft. G. T. S.

No. 118. PÁRSER, *T. S.*, 27° 46′·2; 80° 28′·9 ♁, in Hindostán, on the Pírhi river, an affluent of the Gúmti . . . . . 549 ft. G. T. S.

No. 119. MÁUA, 26° 16′·0; 80° 30′·4 ♁, in Hindostán, 2 miles W. of the Ganges.
Loc. *Tower Station* . . . . . 494 ft. G. T. S.

No. 120. JAFIRABÁD, 26° 0′·7; 80° 34·7 ♁, in Hindostán, 8 miles S. of the Ganges.
Loc. *Tower Station* . . . . . 476 ft. G. T. S.

No. 121. NAMÁNA, 26° 28′·2; 80° 35′·4 ♁, in Hindostán, 16 miles E. of Kánhpur (Cawnpore).
Loc. *Tower Station* . . . . . 501 ft. G. T. S.

No. 122. JALHÓTER, 26° 41′·6; 80° 37′·1 ♁, in Hindostán, 28 miles E. of the Ganges.
Loc. *Tower Station* . . . . . 486 ft. G. T. S.

No. 123. SËRVÁYA, 27° 37′·7; 80° 37′·4 ♁, in Hindostán, 25 miles E. of the Gúmti.
Loc. *Tower Station* . . . . . 542 ft. G. T. S

No. 124. DALENÁG, 28° 4′·2; 80° 37′·7 ♁, in Hindostán, 5 miles S.E. of Aligánj.
Loc. *Tower Station* . . . . . 618 ft. G. T. S.

No. 125. RAMNÁGGER, *T. S.*, 28° 16′·5; 80° 38′·2 ♁, in Hindostán, on the right side of the Sárju, or Ghágra . . . . . 623 ft. G. T S

No. 126. ETÓRA, *T. S.*, 26° 54′·3; 80° 38′·7 ♁, in Hindostán, 50 miles N.E. of Khánpur (Cawnpore) . . . . . 469 ft. G. T. S.

No. 127. BALÁNDPUR, *T. S.*, 27° 51′·1; 80° 39′·2 ♁, in Hindostán, 40 miles W. of the Sárju, or Ghágra . . . . . 546 ft. G. T S.

No. 128. BARÁULI, 27° 8′·2; 80° 39′·7 ♁, in Hindostán, 6 miles S. of the Gúmti.
Loc. *Tower Station* . . . . . 506 ft. G. T. S.

No. 129. FÁTIHNÁGGER, 27° 23′·9; 80° 39′·8 ⏚; in Hindostán, 15 miles E. of the Gúmti.
Loc. *Tower Station* . . . . . 510 ft. G. T. S.

No. 130. SAIDÁRA, 27° 58′·1; 80° 45′·8 ⏚, in Hindostán, 15 miles S.E. of Aligánj.
Loc. *Tower Station* . . . . . 612 ft. G. T. S.

No. 131. HÍLJI, 28° 8′·4; 80° 46′·8 ⏚, in Hindostán, 10 miles E.N.E. of Aligánj.
Loc. *Tower Station* . . . . . 610 ft. G. T. S.

No. 132. FÁṬIHPUR, 25° 56′; 80° 48′, in Hindostán, 25 miles S.E. of Kánhpur.
Loc. *Dak bángalo* . . . . . 504 ft. Schl., Rob.

6, Adie. 1855, April 9. *B* = Ágra; *C* = Aligárh.
9h 45m A.M. *A*. 29 548, 88 0; 22. *B*. 29 398; 88 5. + 2 = 509. *C*. 29·292; 83·3. + 4 = 498.

No. 133. KÁTIA, *T. S.*, 28° 2′·6; 80° 54′·7 ⏚, in Hindostán, 18 miles W. of the Sárju, or Ghágra . . . . . 582 ft. G. T. S.

No. 134. ASÓGAPUR, *T. S.*, 27° 53′·4; 80° 55′·4 ⏚, in Hindostán, on the right side of the Cháuka river, an affluent of the Sárju, or Ghágra . . . . . 567 ft. G. T. S.

No. 135. LÁKHNÁU, 26° 51′·2; 80° 55′·6 ⏚, in Hindostán, the capital of Audh
Loc. *Compound of the Residency* . . . . . 535 ft. Schl., Herm.

1, Greiner. 1856, April 10. *B* = Ágra; *C* = Aligárh.
4h P.M. *A*. 29·268, 86 0. *B*. 29 121; 100·7. + 6 = 513. *C*. 29·072; 101·0. + 7 = 556.

No. 136. ASRÁFPUR, *T. S.*, 27° 29′·4; 81° 0′·8 ⏚, in Hindostán, 18 miles E. of Khairabád, in Audh . . . . . 550 ft. G. T. S.

No. 137. DAURÁRA, *T. S.*, 27° 59′·9; 81° 4′·5 ⏚, in Hindostán, 4 miles W. of the Sárju, or Ghágra . . . . . 571 ft. G. T. S.

No. 138. LÁKAN, *T. S.*, 27° 48′·8; 81° 5′·8 ⏚, in Hindostán, 3 miles E. of the Cháuka river, an affluent of the Sárju, or Ghágra . . . . . 555 ft. G. T. S.

No. 139. NAGDÍLPUR, *T. S.*, 25° 34′·3; 81° 8′·4 ⏚, in Hindostán, on the left side of the Jámna . . . . . 475 ft. G. T. S.

No. 140. KHÁNPUR, *T. S.*, 27° 39′·0; 81° 8′·4, in Hindostán, on the left side of the Cháuka river, an affluent of the Sárju, or Ghágra . . . . . 541 ft. G. T. S.

No. 141. KHÁRA, 26° 7′·6; 81° 9′·8, in Hindostán, 10 miles S.W. of Roi Baréli.
Loc. *Tower Station* . . . . . 483 ft. G. T. S.

No. 142. MAJILGÁŨ, *T. S.*, 25° 45′·2; 81° 9′·8, in Hindostán, on the northern side of the Grand Trunk road, between Allahabád and Fátihpur . . . . . 471 ft. G. T. S.

No. 143. SAMNÁDIO, *T. S.*, 27° 10′·1; 81° 10′·6, in Hindostán, 30 miles N.E. of Lákhnáu, the capital of Audh . . . . . 526 ft. G. T. S.

No. 144. PERÉVA, *T. S.*, 26° 38′·0; 81° 11′·2, in Hindostán, 25 miles S.E. of Lakhnáu, the capital of Audh . . . . . 494 ft. G. T. S

No. 145. UTIAMÁU, *T. S.*, 26° 59′·9; 81° 11′·3, in Hindostán, 2 miles W. of the Sárju, or Ghágra . . . . . 520 ft. G. T. S

No. 146. SÓRA, 26° 17′·3; 81° 11′·4, in Hindostán, 6 miles N. of Roi Baréli.
Loc. *Tower Station* . . . . . 488 ft. G. T. S.

No. 147. PESÁR, *T. S.*, 26° 48′·8; 81° 11′·4, in Hindostán, 20 miles E. of Lakhnáu, the capital of Audh . . . . . 492 ft. G. T. S.

No. 148. TÁULI, 26° 27′·3; 81° 11′·9, in Hindostán, 16 miles N. of Roi Bareli.
Loc. *Tower Station* . . . . . 492 ft. G. T. S.

No. 149. THÁNA, *T. S.*, 27° 28′·3; 81° 13′·7, in Hindostán, 2 miles W. of the Sárju, or Ghágra . . . . . 521 ft. G. T. S

No. 150. CHÉLUA, *T. S.*, 27° 55′·7; 81° 13′·8, in Hindostán, on the right side of the Sárju, or Ghágra . . . . . 545 ft. G. T. S.

No. 151. HÓRESA, *T. S.*, 25° 55′·4; 81° 13′·9, in Hindostán, near the left side of the Ganges . . . . . 471 ft. G. T. S.

No. 152. TÁNGAN, 26° 2′·9; 81° 15′·7 ⏚, in Hindostán, 9 miles S.E. of Khára.
Loc. *Tower Station* . . . . . 486 ft. G. T. S.

No. 153. ÍMLIA, *T. S.*, 27° 19′·3; 81° 16′·8 ⏚, in Hindostán, 40 miles N.N.E. of Lákhnáu, the capital of Audh . . . . . 548 ft. G. T. S.

No. 154. BÉLA, *T. S.*, 27° 47′·2; 81° 17′·1 ⏚, in Hindostán, on the right side of the Sárju, or Ghágra . . . . . 528 ft. G. T. S.

No. 155. PABHÓSA, *H. S.*, 25° 21′·3; 81° 18′·1 ⏚, in Hindostán, on the left side of the Jamna, W. of Allahabád . . . . . 630 ft. G. T. S.

No. 156. MUNÁI, 26° 10′·8; 81° 19′·6 ⏚, in Hindostán, 9 miles S.E. of Roi Baréli.
Loc. *Tower Station* . . . . . 474 ft. G. T. S.

No. 157. RAGÁUPUR, *T. S.*, 27° 17′·7; 81° 19′·7 ⏚, in Hindostán, 5 miles W. of the Sárju, or Ghágra . . . . . 487 ft. G. T. S.

No. 158. ÁMOLI, *T. S.*, 27° 5′·6; 81° 20′·4 ⏚, in Hindostán, 4 miles S. of the confluence of the Sárju with the Cháuka . . . . . 514 ft. G. T. S.

No. 159. JANÁI, 26° 22′·1; 81° 20′·5 ⏚, in Hindostán, 18 miles N.E. of Roi Baréli.
Loc. *Tower Station* . . . . . 496 ft. G. T. S

No. 160. KÁRRA, *T. S.*, 25° 41′·9; 81° 21′·2 ⏚, in Hindostán, on the Grand Trunk road, between Allahabád and Fátihpur . . . . . 477 ft. G. T. S.

No. 161. PARIÁŨ, 25° 50′·1; 81° 21′·3 ⏚, in Hindostán, 6 miles N.E. of Hóresa.
Loc. *Tower Station* . . . . . 458 ft. G. T. S.

No. 162. BÁSANTPUR, *T. S.*, 26° 43′·4; 81° 21′·5 ⏚, in Hindostán, 30 miles E.S.E. of Lakhnáu, the capital of Audh . . . . . 481 ft. G. T. S.

No. 163. TÍKIRI, 26° 32′·7; 81° 21′·6 ⏚, in Hindostán, 30 miles N.N.E. of Roi Baréli.
Loc. *Tower Station* . . . . . 493 ft. G. T. S.

No. 164. TÁRKÁNI, *T. S.*, 26° 54′·8; 81° 21′·9, in Hindostán, 25 miles W. of the Sárju, or Ghágra . . . . . 507 ft. G. T. S.

No. 165. MÁSI, *T. S.*, 27° 38′·3; 81° 22′·2, in Hindostán, 6 miles E. of the Sárju, or Ghágra . . . . . 530 ft. G. T. S.

No. 166. SALÁŨ, 26° 1′·7; 81° 26′·3, in Hindostán, 25 miles S.E. of Roi Bareli.

Loc. *Tower Station* . . . . . 484 ft. G. T. S

No. 167. SINGRÁUR, *T. S.*, 25° 35′·1; 81° 37′·7, in Hindostán, on the left side of the Ganges, above Allahabád . . . . . 449 ft. G. T. S.

No. 168. KHORÁDI, 24° 54′; 82° 59′, in Bahár, about 18 miles N. of Shahgánj.

Loc. *Hill Station* . . . . . 1,225 ft. I. A. 89

No. 169. BENÁRES, 25° 18′·4; 82° 59′·8, in Hindostán, on the left side of the Ganges, 74 miles E. of Allahabád.

Loc. *Charles Hôtel* . . . . . 347 ft. Schl., Rob

6, Adie. 1855, April 5, 3h 15m P.M. *A.* 29 197; 90 1; 14. Agra 29 178, 93 1; 12. | 13

No. 170. GHÁZIPUR, 25° 33′·6; 83° 31′·8, in Hindostán, on the left side of the Ganges, 71 miles N.E. of Benáres.

Loc. *Dak bángalo* . . . . . 351 ft. Schl., Ad.

6, Adie. 1855, April 1. *B.* = Ágra: *C.* = Aligarh

12h 20m P.M. *A.* 29·615; 89 4; 14 | *B.* 29 296; 87 4; 13. + 20 = 357. | *C.* 29 193; 87·1 | 26 - 353

5h 45m „ „ 29·536; 87 3; 13 | „ 29 127. 88 9 | 6 - 344

No. 171. MASÁHI, 24° 59′; 83° 36′, in Bahár, about 24 miles W. of Sásseram.

Loc. 1) *Masáhi peak* . . . . . 358 ft. I. A. 103

Loc. 2) *Bhágvapur, E. peak* . . . . . 459 „ I. A. 103

Loc. 3) *Kúndva Temple, W. of Masáhi* . . . . . 600 „ I. A. 103.

No. 172. HÁRNA KÚRI GHÁT, 24° 54′; 83° 37′, in Bahár, about 21 miles W. of Sásseram . . . . . 833 ft. I. A. 103

No. 173. DÉRI, 24° 56′; 83° 44′, in Bahár, about 19 miles W. of Sásseram.

Loc. 1) *Déri peak* . . . . . 780 ft. I. A. 103.

Loc. 2) *Hássanpur peak* . . . . . 506 „ I. A. 103.

Loc. 3) *Umárpur peak* . . . . . 781 „ I. A. 103.

No. 174. BÁKSAR, 25° 34′; 83° 59′, in Hindostán, on the right side of the Ganges, 70 miles W. of Dínapur.

Loc. 1) *Railway bángalo* . . . . . 350 ft. Schl., Ad

4, Adie. 1855, April 3. *B* = Ágra; *C* = Aligárh.

9h 30m A.M. *A*. 29·670; 78·8; 23. *B*. 29 386; 80·6; 14. + 3 = 381. *C*. 28·977; 75·9. + 4 = 318.

Loc. 2) *Level of the Ganges during the dry season* . . . . . 310 ft.

— 40 ft. below the railway bángalo; by aneroid.

No. 175. SÁSSERAM, 24° 57′; 84° 1′, in Bahár, 72 miles S.E. of Benáres.

Loc. 1) *Dak bángalo*. . . . . 448 ft. Schl., Rob.

2, Pistor. 1855, April 4. *B* = Ágra; *C* = Aligárh.

4h P.M. *A*. 29·434; 91 9; 10. *B*. 29 233; 91·0; 22. + 6 = 460. *C*. 29 123; 97·0. + 10 = 448.

5h „ „ 29 441; 90 1; 12. „ 29·241; 89·6; 25. + 1 = 458. „ 29·123; 92 8. + 6 = 433.

Loc. 2) *Gái Ghat, W. of Sásseram* . . . . . 430 ft. I. A. 112.

Loc. 3) *Hill at Múndi Sarái, S.W. of Sásseram* . . . . . 684 „ I. A. 112.

No. 176. DÉRI, 24° 55′; 84° 10′, in Bahár, on left side of the Son, 336 miles W. of Calcutta . . . . . 332 ft. Hook.

No. 177. BÁKVA, 27° 2′·7; 84° 10′·3 ⏄, in Hindostán, district of Sárun.

Loc. *Tower Station* . . . . . 323 ft. G. T. S.

No. 178. BARÚN, 24° 51′·6; 84° 12′·4 ⏄, in Bahár, near the right side of the Sōn, 233 miles W. of Calcutta . . . . . 344 ft. Hook

---

No. 179. HURILÁUNG, 24° 2′·1; 84° 20′·9 ⏄, in Bahár, 18 miles N.E. of Pálamo.

Loc. *Hill Station*. . . . . 1,375 ft. G. T. S.

No. 180. DÚMRI, 24° 34′·9; 84° 21′·6 ⏄, in Bahár, E. of the Sōn.

Loc. *Tower Station, base* . . . . . 193 ft. G. T. S.

No. 181. NAUNANGÁRH, 26° 59′·1; 84° 29′·8, in Hindostán, district of Sárun.
Loc. *Tower Station* . . . . . 360 ft. G. T. S.

No. 182. NARANGABÁD, 24° 46′; 84° 24′, in Bahár, on the Grand Trunk road, 320 miles N.W. of Calcutta . . . . . 337 ft. Hook.

No. 183. SIUGÁNJ, 24° 43′; 84° 29′, in Bahár, on the Grand Trunk road. 312 miles N.W. of Calcutta.
Loc. *Base of the 312th mile-stone* . . . . . 365 ft. Hook

No. 184. TARHÁRVA, 27° 6′·1; 84° 29′·5, in Hindostán, district of Sárun.
Loc. *Tower Station* . . . . . 320 ft. G. T. S

No. 185. SATHVÁRIA, 26° 57′·6; 84° 31′·0, in Hindostán, district of Sárun.
Loc. *Tower Station* . . . . . 288 ft. G T S.

No. 186. MÍRZAPUR, 25° 9′·3; 82° 33′·9, in Hindostán, on the right side of the Ganges.
Loc. *Undefined* . . . . . 362 ft. Hook

No. 187. MADÁNPUR, 24° 39′; 84° 34′, in Bahár, on the Grand Trunk road, 305 miles N.W. of Calcutta . . . . . 402 ft. Hook

No. 188. BIÉRVA, 26° 51′·7; 84° 38′·9, in Bengál, district of Sárun.
Loc. *Tower Station* . . . . . 276 ft. G. T. S.

No. 189. SÍKTA, 27° 1′·7; 84° 39′·9, in Hindostán, district of Sárun.
Loc. *Tower Station* . . . . . 305 ft. G. T. S.

No. 190. ÁRRAH, 25° 33′; 84° 41′, in Bahár, 25 miles W. of Dínapur.
Loc. *Mean height of the plain* . . . . . 201 ft. Schl., Ad

6, Adie. 1855, April 2. *B* = Calcutta; *C* = Pátna. Local Corr. — 7 ft.

9h A.M. *A*. 29·686; 87·3; 27. *B*. 29 850; 86·2 + 0 = 173. *C*. 29 717, 82·2; + 0 − 7 = 194
3h 40m P.M. „ 29·544; 93 4; 18. „ 29·743; 95·0 − 7 = 212.
6h 10m „ „ 29·540; 88·3; 22. „ 29·754; 90·2 − 1 = 225.

No. 191. Sigáuli, 26° 46′·7; 84° 44′·4 ♁, in Bengál, 24 miles S. of the Nepál Tarái.

Loc. *Late Major Holmes' bángalo* . . . . . 267 ft. Schl., Herm.

9, Pistor. 1857, Febr. 15, 1h P.M. *A.* 29 686; 78 6. Pátna 29 785; 69·8 = 266.
„ „ March 13, 6h P.M. *A.* 29 701; 74 7. Calcutta 29·956; 82·4 = 267.

No. 192. Begóya, 26° 45′·9; 84° 46′·9 ♁, in Bengál, district of Sárun.

Loc. *Tower Station* . . . . . 267 ft. G. T. S.

No. 193. Sherghótti, 24° 33′·4; 84° 47′·0, in Bahár, 58 miles N.W. of Hazaribágh.

Loc. *Dak bángalo* . . . . . 439 ft. Schl., Rob.

„ *ditto* . . . . . 160 „ Hook.

2, Pistor. 1855, April 2. *B* = Calcutta; *C* = Pátna.
9h A.M. *A.* 29 434; 84 0; 28. *B.* 29 819; 86 9; 56. — 1 = 428. *C.* 29·717; 82·2; — 1 = 449.

No. 194. Piperghátí, 24° 33′; 84° 53′, in Bahár, on the Grand Trunk road, 285 miles N.W. of Calcutta.

Loc. *Base of the 284th mile-stone* . . . . . 474 ft. Hook.

No. 195. Kasiátu, 23° 58′·5; 84° 53′·3 ♁, in Bahár, between Pálamo and Hazaribágh.

Loc. *Hill Station* . . . . . 2,663 ft. G. T. S.

No. 196. Batváya, 26° 49′·8; 84° 55′·6 ♁, in Bengál, district of Sárun.

Loc. *Tower Station.* . . . . . 259 ft. G. T. S.

No. 197. Rúpdi, 26° 40′·0; 84° 56′·3 ♁, in Bengál, district of Sárun.

Loc. *Tower Station* . . . . . 254 ft. G. T. S.

No. 198. Danghái, 24° 27′; 84° 57′, in Bahár, N.W. of Hazaribágh.

Loc. *Level of the nálah* . . . . . 692 ft. Jacq.

No. 199. Béla, 24° 55′; 84° 59′, in Bahár, 24 miles N.N.E. of Sherghótti.

Loc. *Dak bángalo* . . . . . 284 ft. Schl., Rob.

2, Pistor. 1855, March 29, 9h A.M. *A.* 29 587; 84 6; 22. Calcutta 29 858; 84·0; + 0 = 285.
„ „ April 1, 10h „ „ 29·552; 92·7; 23. Pátna 29·667; 83 0; — 2 = 282.

No. 200. BÁRA, 24° 30′; 85° 1′, in Bahár, 276 miles N.W. of Calcutta.

Loc. *Dák bángalo* . . . . . 488 ft. Schl., Rob.

„ *ditto* . . . . . 479 „ Hook.

2, Pistor. 1855, March 28, 9h A.M. *A.* 29·398; 84·0; 32. Calcutta 29 888; 86 2. Loc. corr. - 15 ft.

No. 201. KUNCHÉTT, or KENACHÉTT, 24° 19′; 85° 2′, in Bahár, S.W. of Bhuga.

Loc. *Dák bángalo* . . . . . 1,421 ft. Jacq.

No. 202. BARÁBER, 24° 1′·1; 85° 2′·2 ⏚, in Bahár, E. of the Son.

Loc. *Hill Station* . . . . . 1,028 ft. G T S.

No. 203. DEPÁI, 26° 45′·2; 85° 4′·5 ⏚, in Bengál, district of Sárun.

Loc. *Tower Station* . . . . . 274 ft. G T S

No. 204. PÁTAL, 23° 40′·6; 85° 6′·5′ ⏚, in Bahár, E. of Pálamo.

Loc. *Hill Station* . . . . . 2,179 ft. G T S

No. 205. PÁTNA, 25° 37′·2; 85° 7′·5 ⏚, in Western Bengál, a large civil station on the right bank of the Ganges.

Loc. 1) *Cistern of Mr. Knott's barometer* . . . . . 170 ft. Schl., Rob

Observer: Mr. Knott. 1855, April, at 10h A.M.

April.	Pátna.	Calcutta.	Height.	April.	Pátna.	Calcutta.	Height
2	29·743; 86 2	29 872; 88 8	174	17	29 670, 82 6	29 867, 82·8	211
3	29·709; 84·9	29·847; 87·6	151	18	29 646; 81·7	29 808; 81 6	177
4	29 717; 85 3	29 886; 88 0	185	21	29 650; 79 2	29 772, 81 0	138
5	29·717; 81·1	29 875; 83 8	173	20	29 579; 79 7	29 776; 75 9	210
7	29·686; 81·7	29 835; 87 4	165	21	29 658; 71 7	29 788; 81 3	115
9	29 764; 82 0	29·922; 89 1	173	23	29 627; 75·6	29 764; 66 0	150
10	29·705; 83 7	29·886; 88·5	197	24	29 701; 75 6	29 835; 72 5	117
11	29·697; 83·5	29·896; 87 8	214	25	29 646; 76 1	29 788; 80 8	157
12	29 788; 83 1	29 934; 85 6	160	27	29·662; 81·7	29 788, 79 2	111
13	29 753; 82 0	29·902; 86·2	165	28	29·650; 86 5	29 796; 84·9	162
14	29·686; 81·1	28·851; 84 9	180	30	29·623; 86 5	29 796, 89·2	190
16	29·753; 81·1	29·894; 88·9	157				

Loc. 2) *Level of the railway* . . . . . 185 ft. Turnb

No. 206. MÁHER, 24° 44′·4; 85° 8′·9 ⏚, in Bahár, E. of the Sōn.
Loc. *Hill Station* . . . . . 1,616 ft. G. T. S.

No. 207. PENARKÚN, 24° 11′; 85° 9′, in Bahár, N.W. of Hazaribágh.
Loc. *Dak búngalo* . . . . . 1,427 ft. Jacq.

No. 208. LOHAVÁR, 24° 28′·3; 85° 10′·0 ⏚, in Bahár, E. of the Sōn.
Loc. *Hill Station* . . . . . 1,800 ft. G. T. S.

No. 209. DÁNVA, 24° 27′; 85° 11′, in Bahár, on the Grand Trunk road, 265 miles N.W. of Calcutta . . . . . 625 ft. Hook.

No. 210. SINÉREA, 26° 45′·2; 85° 14′·9 ⏚, in Bengál, district of Sárun.
Loc. *Tower Station* . . . . . 282 ft. G. T. S.

No. 211. RÁMPUR, 26° 27′·0; 85° 15′·5 ⏚, in Hindostán, N. of Gosáuth.
Loc. *Tower Station, base* . . . . . 200 ft. G. T. S.

No. 212. ÁMUA, 26° 35′·7; 85° 15′·8 ⏚, in Bengál, district of Sárun.
Loc. *Tower Station, base* . . . . . 213 ft. G. T. S.

No. 213. GOSÁUTH, 26° 17′·4; 85° 16′·0 ⏚, in Hindostán, near the Gándak.
Loc. *Tower Station, base* . . . . . 194 ft. G. T. S.

No. 214. CHÁRPARAN, 24° 23′; 85° 17′, in Bahár, on the Grand Trunk road, 257 miles N.W. of Calcutta . . . . . 1,322 ft. Hook.

No. 215. KAMTÁUL, *T. S., base*, 25° 59′·2; 85° 18′·0 ⏚, in Hindostán between Lalgánj and Mozáferpur, N. of the Ganges . . . . . 170 ft. G. T. S.

No. 216. TÚRKI, 25° 49′·6; 85° 18′·4 ⏚, in Hindostán, 9 miles E. of Lalgánj.
Loc. *Tower Station, base* . . . . . 176 ft. G. T. S.

No. 217. DOBÁULI, 25° 40′·3; 85° 19′·3 ⏚, in Hindostán, 6 miles E. of Hájipur.
Loc. *Tower Station, base* . . . . . 163 ft. G. T. S.

No. 218. TULBÁRIA, *T. S., base*, 25° 30′·4; 85° 20′·4 ⏚, in Bengál, on the right bank of the Ganges, S.E. of Pátna . . . . . 169 ft. G. T. S.

No. 219. HAZARIBÁGH, 24° 0′·0; 85° 20′·9 ⏚, in Bengál, district of Ramgárh, 189 miles S.E. of Benáres.

Loc. 1) *Mean height of the station* . . . . . 1,750 ft. Thorn.
Loc. 2) *Dák bángalo* . . . . . 1,903 „ Jacq.

No. 220. HÁNDIA, 24° 57′·8; 85° 22′·1 ⏚, in Bahár, E. of the Sön.

Loc. *Hill Station* . . . . . 1,473 ft. G. T. S

No. 221. BÁRHI, 24° 17′; 85° 23′, in Bahár, on the Grand Trunk road, 245 miles N.W. of Calcutta.

Loc. 1) *Undefined* . . . . . 1,169 ft. Hook.
Loc. 2) *Base of the 243th mile-stone* . . . . . 1,339 „ Hook

---

No. 222. CHANDVÁR, 23° 57′·3; 85° 25′·2 ⏚, in Bahár, 5 miles S. of Hazaribágh.

Loc. *Hill Station* . . . . . 2,828 ft. G. T. S.

No. 223. PÓTA, 26° 22′·7; 85° 25′·4 ⏚, in Hindostán, N.E. of Gosáuth.

Loc. *Tower Station, base* . . . . . 201 ft. G. T. S.

No. 224. MADÁNPUR, 26° 31′·1; 85° 25′·4 ⏚, in Bengál, district of Tirhút.

Loc. *Tower Station, base* . . . . . 205 ft. G. T. S

No. 225. BULÁKIPUR, 26° 40′·9; 85° 25′·4, in Bengál, district of Tirhút.

Loc. *Tower Station* . . . . . 268 ft. G. T. S.

No. 226. PALÁDPUR, 26° 4′·4; 85° 26′·2 ⏚, in Bengál, 2 miles S.E. of Mozáferpur.

Loc. *Tower Station, base* . . . . . 181 ft. G. T. S

No. 227. SÁVAJPUR, 26° 13′·6; 85° 26′·2 ⏚, in Bengál, 8 miles N.E. of Mozáferpur.

Loc. *Tower Station, base* . . . . . 180 ft. G. T. S.

No. 228. BARAGÁI, *H. S.*, 23° 33′·0; 85° 26′·2 ⏚, in Bahár, 3 miles S. of Ramgárh, on the Damúda. . . . . 3,459 ft. G. T. S.

No. 229. CHÁPRA, 25° 55′·0; 85° 26′·5 ⏚, in Hindostán, 18 miles S.S.E. of Mozáferpur.
Loc. *Tower Station, base* . . . . . 166 ft. G. T. S.

No. 230. BHÁRTPUR, 25° 46′·0; 85° 27′·4 ⏚, in Bengál, 20 miles N.E. of Hájipur.
Loc. *Tower Station, base* . . . . . 160 ft. G. T. S.

No. 231. MUKTIÁRPUR, 25° 36′·0; 85° 29′·5 ⏚, in Bengál, 3 miles N.E. of the Ganges.
Loc. *Tower Station, base* . . . . . 169 ft. G. T. S.

No. 232. SÁKRÁJ, 24° 13′; 85° 31′, in Bahár, on the Grand Trunk road, 236 miles N.W. of Calcutta.
Loc. *Base of the mile-stone* . . . . . 1,361 ft. Hook.

No. 233. BÚDNA, 24° 41′·7; 85° 34′·5 ⏚, in Bahár, E. of the Sōn.
Loc. *Hill Station* . . . . . 1,833 ft. G. T. S.

No. 234. JOB MÁKANPUR, 24° 59′·6; 85° 36′·6 ⏚, in Bahár, E. of the Sōn.
Loc. *Tower Station, base* . . . . . 277 ft. G. T. S.

No. 235. HIMÁNPUR, 26° 29′·3; 85° 36′·8 ⏚, in Bengál, district of Tirhút.
Loc. *Tower Station* . . . . . 223 ft. G. T. S.

No. 236. BELKÁPI, 24° 9′; 85° 38′, in Bahár, on the Grand Trunk Road, 228 miles N.W. of Calcutta.
Loc. *Undefined* . . . . . 1,219 ft. Hook.

No. 237. SHÁHPUR, 26° 24′·7; 85° 46′·4 ⏚, in Bengál, district of Tirhút.
Loc. *Tower Station* . . . . . 207 ft. G. T. S.

No. 238. RHEÓVA HILL, 24° 49′; 85° 50′, in Bahár, 2 miles N. of the Sákri nálah.
Loc. *Hill Station* . . . . . 1,678 ft. I. A. 112.

No. 239. CHÁINPUR, *H. S.*, 23° 33′·3; 85° 50′·3 ⊥, in Bahár, S.E. of Ramgárh, a town on the Damúda . . . . . 2,097 ft. G. T. S.

No. 240. JIRÓL, 26° 30′·9; 85° 54′·6 ⊥, in Bengál, district of Tirhút.

Loc. *Tower Station* . . . . . 217 ft. G. T. S.

No. 241. CHANDERSENPÚR, 26° 22′·5; 85° 57′·9 ⊥, in Bengál, district of Tirhút.

Loc. *Tower Station* . . . . . 211 ft. G. T. S.

No. 242. DÚMRI, 23° 59′; 85° 59′, in Bahár, on the Grand Trunk road, 202 miles N.W. of Calcutta.

Loc. 1) *Undefined* . . . . . 996 ft. Hook.

Loc. 2) *Highest point on the Grand Trunk road* . . . . . 1,446 „ Hook.

No. 243. BARÁRI, 25° 15′·8; 86° 0′·9 ⊥, in Bahár, district of Párnea.

Loc. *Tower Station, base* . . . . . 178 ft. G. T. S

No. 244. MÁLTI, 25° 28′; 86° 1′, in Bengál, 2 miles N. of the Ganges.

Loc. *Tower Station* . . . . . 150 ft. I. A. 112.

No. 245. SAHIÁR, 25° 45′; 86° 3′, in Bengál, near the town of Rausára.

Loc. *Tower Station* . . . . . 162 ft. I. A. 112

No. 246. NARHÁR, 26° 31′·8; 86° 5′·2 ⊥, in Bengál, district of Tirhút.

Loc. *Tower Station* . . . . . 239 ft. G. T. S

No. 247. BAGMÚRI, 22° 29′·0; 86° 6′·0 ⊥, in Bengál, 28 miles E. of Chaiabássa.

Loc. *Hill Station* . . . . . 2,003 ft. G. T. S.

No. 248. PARISNÁTH, 23° 57′·8; 86° 6′·9 ⊥, in Bahár, a mountain about 200 miles N.W. of Calcutta.

Loc. 1) *Highest summit* . . . . . 4,469 ft. Liebig

„ 2) *Height of the temple* . . . . . 4,039 „ Liebig

„ 3) *Base of the flagstaff* . . . . . 4,459 „ G. T. S

„ 4) *Top of East peak* . . . . . 4,215 „ Hook.

Loc. 5) *Parisnáth saddle* . . . . . 4,231 ft. Hook.
Loc. 6) *Lower limit of Clematis and Berberis* . . . . . 3,162 „ Hook.

No. 249. Gurgabúru, 23° 8′·5; 86° 6′·9, in Bahár, E. of the Sunbanríka.
Loc. *Hill Station* . . . . . 2,220 ft. G. T. S.

No. 250. Bhária Bisánpur, 26° 22′·8; 86° 7′·8, in Bengál, district of Tirhút.
Loc. *Tower Station* . . . . . 215 ft. G. T. S.

No. 251. Gudargánvan, 25° 24′; 86° 8′, in Bengál, near the left side of the Ganges.
Loc. *Tower Station* . . . . . 153 ft. I. A. 112.

No. 252. Havídi, 26° 0′; 86° 9′, in Bengál, 10 miles S.E. of Dárbhâng.
Loc. *Tower Station* . . . . . 163 ft. I. A. 112.

No. 253. Topichánchi, 23° 54′; 86° 11′, in Bahár, on the Grand Trunk road, 188 miles N.W. of Calcutta . . . . . 912 ft. Hook.

No. 254. Dálma, *H. S.*, 22° 53′·4; 86° 12′·3, in Bahár, on the western slopes of the Bamín hills . . . . . 3,050 ft. G. T. S.

No. 255. Mírzapur, 26° 31′·1; 86° 15′·6, in Bengál, district of Tirhút.
Loc. *Tower Station* . . . . . 254 ft. G. T. S.

No. 256. Bársam, 26° 21′·4; 86° 18′·0, in Bengál, district of Tirhút.
Loc. *Tower Station* . . . . . 219 ft. G. T. S.

No. 257. Sidéshar, 22° 36′·6; 86° 22′·5, in Bengál, 22 miles N. of Satbákra.
Loc. *Hill Station* . . . . . 1,446 ft. G. T. S.

No. 258. Fitkúri, 23° 51′; 86° 23′, in Bahár, 12 miles E. of Topichánchi.
Loc. *Dak bángalo* . . . . . 831 ft. Schl., Rob.
„ *ditto* . . . . . 860 „ Hook.

2, Pistor. 1855, March 26, 10h A.M. *A.* 29·060; 85 3; 25. Calcutta 29·889; 83 4; — 11 ft.

No. 259. SATBÁKRA, 22° 19′·0; 86° 24′·8, in Bengál, 52 miles W. of Midnapur.
Loc. *Hill Station* . . . . . 1,980 ft. G. T. S.

No. 260. SÁKMA, 25° 3′·7; 86° 26′·7, in Bahár, S. of Mónghir.
Loc. *Tower Station* . . . . . 822 ft. G. T. S.

No. 261. MÁRAK, 25° 11′; 86° 27′, in Bahár, 4 miles S.E. of the Ganges.
Loc. *Hill Station* . . . . . 1,527 ft. I. A. 112.

No. 262. BÉLHA, 26° 18′·9; 86° 27′·4, in Bengál, district of Bhágalpur.
Loc. *Tower Station* . . . . . 209 ft. G. T. S.

No. 263. LÉDÂSAL, 22° 41′·2; 86° 27′·6, in Bengál, S. of Bári.
Loc. *Hill Station* . . . . . 1,705 ft. G. T. S

No. 264. BÁNDARI, 22° 50′·5; 86° 30′·7, in Bengál.
Loc. *Hill Station* . . . . . 1,447 ft. G. T. S.

No. 265. GÁIRA, 23° 49′; 86° 32′, in Bahár, on the Grand Trunk road, 162 miles N.W. of Calcutta.
Loc. *Mean height of the village* . . . . . 630 ft. Hook

No. 266. BÁRI, 23° 6′·9; 86° 32′·3, in Bengál, 15 miles E. of the Subanrika.
Loc. *Hill Station* . . . . . 729 ft. G. T. S

No. 267. TILABÁNI, 23° 25′·0; 86° 32′·3, in Bengál, 36 miles W.N.W. of Bákúra.
Loc. *Hill Station* . . . . . 1,336 ft. G. T. S

No. 268. PÁRALIA, 22° 20′; 86° 33′, in Bengál, Ramgárh district.
Loc. *Mean height of the station* . . . . . 670 ft. J. A. Hannyngton

No. 269. LÁDNIA, 26° 25′·8; 86° 36′·3, in Bengál, district of Bhágalpur.
Loc. *Tower Station* . . . . . 242 ft. G. T. S.

No. 270. Símraha, 26° 15′·9; 86° 36′·4 ⏚, in Bengál, district of Bhágalpur.
Loc. *Tower Station* . . . . . 202 ft. G. T. S.

No. 271. Párasa, 23° 7′·3; 86° 39′·7 ⏚, in Bengál, 36 miles S. of the Damúda.
Loc. *Hill Station* . . . . . 915 ft. G. T. S.

No. 272. Mónghir, 25° 27′·4; 86° 40′·2 ⏚, in Bengál, on the right bank of the Ganges.
Loc. 1) *Level of the railway tunnel* . . . . . 389 ft. Turnb.
„ 2) *Mean height of the station* . . . . . ab. 200 „ P. C.

No. 273. Pirdáuri, *T. S.*, 25° 14′·5; 86° 43′·2 ⏚, in Bahár, on the right side of the Ganges, W. of Bhágalpur . . . . . 189 ft. G. T. S.

No. 274. Bharáta, 26° 13′·2; 86° 44′·6 ⏚, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 205 ft. G. T. S.

No. 275. Dúrgapur, 23° 49′·7; 86° 45′·6 ⏚, in Bahár, 4 miles N.E. of Páudra.
Loc. *Hill Station* . . . . . 1,186 ft. G. T. S.

No. 276. Hárpur, 26° 22′·5; 86° 45′·6 ⏚, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 185 ft. G. T. S.

No. 277. Banádi, 25° 27′·1; 86° 51′·9 ⏚, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 117 ft. G. T. S.

No. 278. Latóna, 26° 7′·4; 86° 52′·3 ⏚, in Bengál. district of Párnea.
Loc. *Tower Station* . . . . . 209 ft. G. T. S.

No. 279. Devangánj, 26° 16′·9; 86° 53′·4 ⏚, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 221 ft. G. T. S.

No. 280. Bhágalpur, 25° 14′·8; 86° 56′·6 ⏚, in Bahár, on the right bank of the Ganges, 143 miles E. of Dínapur.
Loc. *Level of the railway* . . . . . 154 ft. Turnb.

No. 281. BÁISI, 26° 13′; 86° 58′, in Bengál, 6 miles W. of the Kósi.
Loc. *Tower Station* . . . . . 242 ft. G. T. S.

No. 282. BARÁRI, 25° 15′·9; 87° 0′·0 ♁, in Bengál, S.W. of Párṇea.
Loc. *Tower Station, base* . . . . . 178 ft. G. T. S.

No. 283. RAMNÁGGER, 26° 2′·2; 87° 0′·6 ♁, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 160 ft. G. T. S.

No. 284. PURÉNI, 25° 36′·7; 87° 0′·9, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 122 ft. G. T. S

No. 285. CHÁNI, 26° 11′·1; 87° 1′·7 ♁, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 208 ft. G. T. S.

No. 286. BARÁRA, 25° 45′·2; 87° 5′·1 ♁, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 131 ft. G. T. S.

No. 287. SĂRKÁNDA, 25° 27′·8; 87° 7′·4, in Bengál, district of Párnea.
Loc. *Tower Station, base* . . . . . 102 ft. G. T. S.

No. 288. GHÍBA, 26° 14′·1; 87° 11′·1 ♁, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 218 ft. G. T. S.

No. 289. RADAMÁDAPUR, 23° 32′·0; 87° 17′·6 ♁, in Bengál, 9 miles S.E. of Calcutta.
Loc. *Hill Station* . . . . . 369 ft. G. T. S.

No. 290. KAMÁLDAHA, 26° 21′·2; 87° 24′·8, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 230 ft. G. T S.

No. 291. BANGHÓRA, 26° 13′·3; 87° 31′·1 ♁, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 205 ft. G. T. S.

No. 292. MASALDÁNGA, 26° 13′·1; 87° 41′·6 ♁, in Bengál, district of Párnea.
Loc. *Tower Station* . . . . . 203 ft. G. T. S

No. 293. LÁCHMIPUR, 26° 11′; 87° 49′, in Bengál, 20 miles N.E. of Kissengánj.

Loc. *Tower Station* . . . . . 237 ft. G. T. S.

No. 294. TÁGRIA, 26° 13′·2; 87° 52′·4 ♁, in Bengál, district of Párnea.

Loc. *Tower Station* . . . . . 200 ft. G. T. S.

AREA III.

PĂNJÁB TO GUJRÁT.

Meridional from north to south: Átak viâ Mithánkōt to Diû.

With reference to its general hypsometric character, this area may be divided into two parts, the one to the west, and the other to the east of the Indus. Westward of the Indus we meet a complicated chain of mountains—the Suféd Koh, a continuation of the Sóliman range—which runs nearly parallel to the course of the Indus. Its highest peak, the Suféd Kōh, in Lat. N. 33° 58′·1, Long. E. Gr. 70° 27′·9, attains a height of 14,839 feet.

A great number of interesting points in the eastern parts of the Sóliman range were determined by Lieutenant Walker (see p. 6), and by Adolphe.

The most remarkable feature east of the Indus are the *duábs*, formed by the various affluents of the Indus. They have so uniform a slope, that comparatively few heights are sufficient to define the general inclination of their course. Greater elevations are to be found only in the Salt Range, for which, in addition to our own observations, we have a considerable number of approximations by Dr. Fleming (see p. 5).

Sindh, the southern part of the area, is to some extent included in the delta of the Indus, and even the higher parts more to the north, are elevated but very little above the level of the sea.

Kăch is a hilly country, separated from Gujrát by the Răn, or salt-moor, in connection with the gulf of Kăch. The remarkable depressions of the Răn, which have been caused by earthquakes, partly in historical times, present a flat surface, for the most part dry in summer, but covered with brackish water after the rains and spring-tides.

No. 1. PESHÁUR, 34° 3′·2; 71° 33′·3 ♁, in the Pănjáb, a large frontier station, W. of the Indus.

Loc. *Cistern of Adolphe's barometer* . . . . . 1,280 ft. Schl., Ad.

1856-7.	Hour.	Pesháur.	Ágra.	Per. Corr.	Height.
	h m				
Dec. 22	7 30 A.M.	28·965; 36·1; 71	29·658; 52 0; 59	+ 15	1,309
„ 29	7 30 „	28 882; 35·4; 66	29·481; 53 2; 37	+ 13	1,223
„ 29	9 „	28·875; 45·7; 58	29 489; 57 9; 45	— 1	1,233
„ 30	9 „	28 839; 52·2; 47	29·489; 62·6; 47	— 1	1,273
„ 31	9 „	28 839; 47 7; 63	29·445; 64·4; 51	— 1	1,231
Jan. 5	7 „	28·886; 46·0; 56	29·579; 58·5; 78	+ 20	1,327
„ 5	9 „	28 894; 51·1; 56	29·579; 63 3; 80	0	1,305
„ 12	9 „	29 052; 48 6; 50	29 662; 55·8; 63	0	1,227
„ 26	7 „	28 603; 48 2; 54	29·363; 57 0; 61	+ 22	1,398

No. 2. SUFÉD KŌH PEAK, 33° 58′·1; 70° 27′·9 ♁, in the Pănjáb, the predominant peak in the Suféd Kōh range . . . . . 14,839 ft. Walk.

No. 3. ÁTAK, 33° 53′·6; 72° 13′·6 ♁, in the Pănjáb, on the right side of the Indus.

Loc. *Level of the Indus, 18 miles above Átak* . . . . . 1,049 ft. G. T. S.

No. 4. CHAJÚT PEAK, 33° 53′; 72° 3′, in the Pånjáb, S. of the station of Naushéra, in the eastern parts of the Kháttak mountains . . . . . 3,335 ft. Walk.

No. 5. SHAMSABÁD, 33° 52′; 72° 27′, in the Pănjáb, about 10 miles S.E. of Átak.

Loc. 1) *Mean height of the plain* . . . . . 1,153 ft. Schl., Ad.

„ 2) *Undefined* . . . . . 1,000 ft. Cun.

6, Adie. 1856, Dec. 14. *B* = Símla; *C* = Ágra.

11h 15m A.M. *A*. 29 044; 61·2; 30. *B*. 23 299; 46·4; 49 + 190 = 1,171. *C*. 29·567; 66·9; 37 — 25 = 1,134.

No. 6. HÁSSAN ÁBDUL, 33° 51′; 72° 40′, in the Pănjáb, 30 miles N.W. of Raulpíndi.

Loc. *Dak bángalo* . . . . . 1,510 ft. Schl., Ad.

6, Adie. 1856, Dec. 13, 7h P.M. *A*. 28·654; 52·2; 50. Símla 23·308; 47·5; 52 + 101 ft.

No. 7. JELLÁLA PEAK, 33° 47′; 71° 53′, in the Pănjáb, Kháttak mountains, N.E. of Kohát . . . . . 5,035 ft. Walk

No. 8. BAZÓTI PEAK, 33° 44′; 71° 20′, in the Pănjáb, Múlu Gărh mountains.
Loc. *Top of the peak* . . . . . 6,985 ft. Walk.

No. 9. RANIKÓT PEAK, 33° 43′; 72° 13′, in the Pănjáb, 2 miles S. of the Indus.
Loc. *Top of the peak* . . . . . 3,295 ft. Walk.

No. 10. SANDÁLLI PEAK, 33° 43′; 72° 1′, in the Pănjáb, Niláb Gash mountains.
Loc. *Top of the peak* . . . . . 2,759 ft. Walk.

No. 11. TÚRU PEAK, 33° 42′; 71° 56′, in the Pănjáb, W. of the Indus.
Loc. *Top of the peak* . . . . . 4,765 ft. Walk.

No. 12. DÚPA PEAK, 33° 41′; 70° 58′, in the Pănjáb, Máziu Gărh mountains.
Loc. 1), *Top of the peak* . . . . . 8,185 ft. Walk
Loc. 2) *Top of a peak to the N.E. of Dúpa peak* . . . . . 7,865 „ Walk.

No. 13. ZÁVA GĂRH PEAK, 33° 39′; 70° 37′, in the Pănjáb, W. of Áli Khel.
Loc. *Top of the peak* . . . . . 9,305 ft. Walk.

No. 14. LUNDÁKI PEAK, 33° 37′; 72° 0′, in the Pănjáb, eastern part of the Kháttak mountains, S.E. of Pesháur . . . . . 1,465 ft. Walk.

No. 15. NARÁI PEAK, 33° 37′; 71° 50′, in the Pănjáb, eastern part of the Kháttak mountains, S.E. of Pesháur . . . . . 3,245 ft. Walk

No. 16. RAULPÍNDI, 33° 36′·5; 72° 59′·8 E., in the Panjáb, a large military station.
Loc. *Mean height of the cantonment* . . . . . 1,737 ft. Schl., Rob.

10, Pistor.

1856.	Hour.	Raulpíndi.	Símla.	Per. Corr.	Height.
Nov. 25	9 A M.	28·438; 49 6; 62	23·308; 45 0; 51	+ 63	1,710
„ 25	6 P. M.	28 371; 59 7; 36	23·292; 52·0; 53	+ 118	1,718
Dec. 4	6 „	28·485; 56·5; 42	23·343; 41 9; 74	+ 117	1,735
„ 5	6 „	28·489; 54·7; 31	23·312; 43 9; 62	+ 118	1,698
„ 6	9 A.M.	28·536; 42 8; 79	23·312; 39·9; 65	+ 63	1,689
„ 6	6 P.M.	28·465; 53 2; 54	23·363; 45·0; 69	+ 116	1,775
„ 8	9 A.M.	28·473; 42·1; 61	23 355; 44·6; 67	+ 62	1,776
„ 8	6 P.M.	28·430; 56 1; 39	23 351; 47·5; 47	+ 116	1,770
„ 9	9 A.M.	28 512; 43 5; 67	23·371; 43 9; 57	+ 63	1,754
„ 9	6 P.M.	28·508; 53 2; 43	23 371; 47·1; 76	+ 117	1,733
„ 10	9 A.M.	28·528; 45 3; 55	23·390; 43 3; 56	+ 63	1,757

No. 17. Kohát, 33° 32′·5; 71° 22′·9 ☥, in the Pănjáb, 40 miles S. of Pesháur.

Loc. 1) *Lieutenant Garnett's bángalo* . . . . . 1,745 ft. Schl., Ad.

11, Pistor. 1857, February.

Date.	Hour.	Kohát.	Pesháur.	Height.
1	9 A.M.	28 301; 48·6	28.800; 50 5	1,753
1	10 „	28·339; 49 6	28·830; 51 2	1,748
2	9 „	28 213; 46·0	28 700; 48 5	1,744
3	9 „	28 028; 45 7	28 510; 46·6	1,742
1	8 „	27 973; 45 7	28·460; 45·6	1,746
4	9 „	28·032; 44·6	28 510; 45 6	1,737

Loc. 2) *Mean height of the cantonment* . . . . . 1,725 ft. Walk.

„ 3) *Kohát pass, N. of Kohát* . . . . . 2,947 „ Schl., Ad.

11, Pistor. 1857, Jan. 31, 4^{h} P.M. *A.* 27·060; 51·4; 35. Pesháur 28·800; 57 0; 40. — 51. Loc. Corr. + 4.

No. 18. Rovát, 33° 32′; 73° 9′, in the Pănjáb, Sindh Ságer duáb, 10 miles S.E. of Raulpíndi.

Loc. *Sarái* . . . . . 1,968 ft. Schl., Rob.

8, Pistor. 1856, Dec. 18, 11^{h} 30^{m} A.M. *A.* 28 154, 79·9, 36. Ágra 29·504, 65·1; 44. — 33 ft.

No. 19. MIRKVÉLI PEAK, 33° 30′; 71° 16′, in the Pănjáb, S.W. of Kohát.

Loc. *Top of the peak* . . . . . 4,615 ft. Walk.

No. 20. KUSSIALGÁRH, 33° 28′; 71° 54′, in the Pănjáb, on the right side of the Indus. N.E. of Kalabágh.

Loc. 1) *Mean height of the plain* . . . . . 970 ft. Schl., Ad.

11, Pistor. 1857, Feb. 7, 8h A.M. *A.* 29·162; 44·8. Pesháur 28·830; 46·3.

„ 2) *Tower Station* . . . . . 1,025 ft. Walk.

„ 3) *Level of the Indus during the dry season* . . . . . 799 „ Schl., Ad

„ 4) *Mean flood level of the Indus* . . . . . 855 „ Schl., Ad.

„ 5) *Maximum flood level during a cataclysm* . . . . . 890 „ Schl., Ad

Localities 3, 4, and 5 were directly measured.

No. 21. GURGURLÓT PEAK, 33° 27′; 71° 45′, in the Pănjáb, W. of Kussialgárh.

Loc. *Top of the peak* . . . . . 3,575 ft. Walk

No. 22. MANDÚRI PEAK, 33° 27′; 71° 24′, in the Panjáb, S. of Kohát.

Loc. *Top of the peak* . . . . . 2,095 ft. Walk

No. 23. SVANÁI PEAK, 33° 22′; 71° 3′, in the Pănjáb, N. of Tíri.

Loc. *Top of the peak* . . . . . 4,710 ft. Walk.

No. 24. LORAMÉLA PEAK, 33° 20′; 71° 38′, in the Pánjáb, 3 miles W. of the Indus.

Loc. *Top of the peak* . . . . . 2,720 ft. Walk.

No. 25. MALGHÍN, 33° 20′; 71° 31′, in the Pănjáb, S.E. of Kohát.

Loc. *Mean height of the village* . . . . . 1,499 ft. Schl., Ad

11, Pistor. 1857, Feb. 8, 11h A.M. *A.* 28·749; 53·6; 54. Pesháur 28·980; 49·1, 50.

No. 26. SUPRÁI PEAK, 33° 20′; 71° 26′, in the Pănjáb, W. of Malghín.

Loc. *Top of the peak* . . . . . 2,466 ft. Walk.

No. 27. DAMBÁRO PEAK, 33° 19′; 70° 50′, in the Panjáb, N.W. of Bahádur Khel.

Loc. *Top of the peak* . . . . . 4,627 ft. Walk.

No. 28. BÁRA BRAGDÁI, 33° 18′; 71° 28′, in the Pănjáb, W. of the Indus.

Loc. *Mean height of the village* . . . . . 1,468 ft. Schl., Ad.

11, Pistor. 1857, Feb. 9, 6h 40m A.M. *A.* 28·599; 42·1; 85. Pesháur 28·800; 42·5; 80.

No. 29. MAKÓRI PEAK, 33° 17′; 71° 15′, in the Pănjáb, W.N.W. of Shákar Déra.

Loc. *Top of the peak* . . . . . 3,048 ft. Walk.

No. 30. GUZERKHÁN, 33° 16′; 73° 20′, in the Pănjáb, Sindh Ságer duáb, half way between Raulpíndi and Jhílum.

Loc. *Mean height of the plain* . . . . . 1,556 ft. Schl., Herm.

9, Pistor. 1856, Dec. 18, 2h P.M.

A. 28 489, 62·8; 27. Símla 23·221; 50 0; 40; + 151 = 1,551. Ágra 29 449; 75·0; 31. — 38 = 1,560.

No. 31. KAND HOKÁNNÍ PEAK, 33° 15′; 71° 34′, in the Pănjáb, N.E. of Shákar Déra.

Loc. *Top of the peak* . . . . . 2,835 ft. Walk.

No. 32. SURTÁNG PEAK, 33° 15′; 71° 0′, in the Pănjáb, N.N.E. of Bahádur Khel.

Loc. *Top of the peak* . . . . . 4,254 ft. Walk

No. 33. JHAMÁT, 33° 14′; 71° 56′, in the Pănjáb, W. of Pind Málik Úlea.

Loc. *Tower Station* . . . . . 1,795 ft. Walk.

No. 34. JANÁK PEAK, 33° 14′; 71° 39′, in the Pănjáb, 2 miles W. of the Indus.

Loc. *Top of the peak* . . . . . 2,345 ft. Walk.

No. 35. SUKAVÁR HOKÁNNI PEAK, 33° 13′; 71° 34′, in the Pănjáb, E. of Shákar Déra.

Loc. *Top of the peak* . . . . . 3,095 ft. Walk.

No. 36. SHÁKAR DÉRA, 33° 13′; 71° 28′, in the Pănjáb, W. of the Indus.

Loc. *Open place near the fort* . . . . . 2,027 ft. Schl., Ad.

11, Pistor. 1857, Feb. 9, 12h 10m P.M. *A.* 28·036; 51 8; 59. Pesháur 28·810; 54·0; 50.

No. 37. GÓA, 33° 12′; 71° 48′, in the Pănjáb, near the left shore of the Indus.

Loc. *Tower Station* . . . . . 1,797 ft. Walk.

No. 38. BAHÁDUR KHĒL, 33° 11′; 70° 56′, in the Pănjáb, a fort W. of the Indus.
Loc. *Mean height of the village* . . . . . 1,825 ft. Walk.

No. 39. LÁKAI JÚNI, or KÁFIR KŌT PEAK, 33° 11′; 70° 46′, in the Panjáb, W. of Bahádur Khēl . . . . . 4,002 ft. Walk

No. 40. SŪD, 33° 10′; 73° 1′, in the Pănjáb, 10 miles S. of Raulpíndi.
Loc. *Mean height of the village* . . . . . 1,841 ft. Schl., Rob.
8, Pistor. 1856, Dec. 19, 2^{h} P.M. *A.* 28 217; 63·5; 25. Ágra 29·457; 72·1; 22. — 36 ft

No. 41. △ SĔRDÁR KŌT, 33° 9′; 71° 35′, in the Pănjáb, W. of the Indus.
Loc. *Mean height of the camp* . . . . . 1,907 ft. Schl., Ad.
11, Pistor. 1857, Feb. 10, 8^{h} A.M. *A.* 28·213; 46·0; 75. Pesháur 28 860; 48 0; 65 + 12 ft.

No. 42. BÁNGLA SĔR PEAK, 33° 8′; 71° 36′, in the Pănjáb, W. of the Indus.
Loc. 1) *Top of the peak* . . . . . 2,877 ft. Walk
Loc. 2) *Bángla pass, near the peak* . . . . . 2,824 „ Schl., Ad
11, Pistor. 1857, Feb. 10, 11^{h} A.M. *A.* 27·288; 50·7. Pesháur 28 920; 52·5. 46 ft.

No. 43. SURDÁG PEAK, 33° 8′; 70° 56′, in the Pănjáb, S.S.W. of Bahádur Khel.
Loc. *Top of the peak* . . . . . 2,763 ft. Walk.

No. 44. JHAMÁT, 33° 6′; 71° 56′, in the Pănjáb, E. of the Indus.
Loc. *Tower Station* . . . . . 1,800 ft. Walk.

No. 45. PRANGSÁI PEAK, 33° 6′; 71° 25′, in the Pănjáb, Lákkar Garh mountains.
Loc. *Top of the peak* . . . . . 4,722 ft. Walk.

No. 46. TÍLLA PEAK, 33° 6′; 73° 26′, in the Pănjáb, eastern parts of the Salt Range.
Loc. *Tank on the summit* . . . . . ab. 3,271 ft. Flem.

No. 47. SÚKA PEAK, 33° 3′; 71° 17′, in the Pănjáb, Shingárh mountains.
Loc. *Top of the peak* . . . . . 4,761 ft. Walk

No. 48. Turgegárh Peak, 33° 2′; 71° 27′, in the Pănjáb, N.W. of Kalabágh.

Loc. *Top of the peak* . . . . . 4,350 ft. Walk.

No. 49. Toll-i-Unchát Peak, 33° 2′; 71° 16′, in the Pănjáb, Shingárh mountains.

Loc. *Top of the peak* . . . . . 4,851 ft. Walk.

No. 50. Chákoval, 33° 2′; 72° 42′, in the Pănjáb, S. of Raulpíndi, on the northern foot of the Salt Range.

Loc. *Compound of the thesíl* . . . . . 1,771 ft. Schl., Rob.

8, Pistor. 1856, Dec. 20, P.M. *B* = Ágra.

1h. *A.* 28·418; 62 8; 41 *B.* 29·560; 70·3; 68 = 1,769. ‖ 3h. *A.* 28 390; 63 7; 24. *B.* 29·532, 72 0; 66 = 1,773.
2h. „ 28 394; 63 7; 25. „ 29 536; 72·1; 66 = 1,771. ‖ 4h. „ 28·391; 61·9; 23. „ 29·532; 71·8, 50 = 1,768.

No. 51. Diljábba Peak, 33° 2′; 73° 7′, in the Pănjáb, eastern part of the Salt Range.

Loc. *Top of the peak* . . . . . 2,872 ft. G. T. S.

No. 52. Dinghót Peak, 33° 1′; 71° 34′, in the Pănjáb, on the right side of the Indus, western part of the Salt Range . . . . . ab. 2,746 ft. Flem.

No. 53. Shoh Peak, 33° 0′; 71° 17′, in the Pănjáb, Shingárh mountains.

Loc. *Top of the peak* . . . . . 3,898 ft. Walk

No. 54. Dhalíp Gárh, 33° 0′; 70° 36′, in the Pănjáb, a fort near Bánnu.

Loc. *Mean height of the village* . . . . . 1,285 ft. Walk.

No. 55. Danghót Peak, 32° 59′; 71° 38′, in the Pănjáb, E. of Kalabágh.

Loc. *Top of the peak* . . . . . 2,702 ft. Walk.

No. 56. Shēkh Níka Peak, 32° 58′; 71° 9′, in the Pănjáb, Lovagárh mountains.

Loc. *Top of the peak* . . . . . 3,997 ft. Walk.

No. 57. Kalabágh, 32° 57′; 71° 29′, in the Pănjáb, on the right side of the Indus, western part of the Salt Range.

Loc. 1) *Mean height of the town* . . . . . 790 ft. Schl., Ad.

11, Pistor. 1857.

Feb. 13, 9h A.M. *A.* 29·260; 58 1; 61. Pesháur 28·750; 55·1; 50 = 794
„ 14, 7h „ „ 29 265; 53·1; 85. „ 28·740; 49 6; 80 = 785

Loc. 2) *Kalabágh peak* . . . . . ab. 2,357 ft. Flem.
„ 3) *Mári, opposite Kalabágh* . . . . . ab. 609 „ Flem.
„ 4) *Mári peak* . . . . . ab. 1,221 „ Flem.

No. 58. KÓTHI, 32° 57′; 71° 23′, in the Panjáb, western part of the Salt Range.
Loc. 1) *Entrance to the Chicháli pass* . . . . . ab. 1,148 ft. Flem.
„ 2) *Highest peak near Kóthi* . . . . . ab. 3,629 „ Flem.

No. 59. BÁNI, 32° 56′; 71° 39′, in the Panjáb, E. of Kalabágh.
Loc. *Tower Station* . . . . . 1,692 ft. Walk.

No. 60. JHÍLUM, 32° 55′·2; 73° 42′·0 ☥, in the Panjáb, Sindh Ságer duáb, on the right bank of the Jhílum.
Loc. 1) *Mean height of the station* . . . . . ab. 1,620 ft. Thorn.
„ 2) *Level of the Jhílum, 2 miles below the station* . . . . 750 „ G. T. S.

No. 61. DERIÁLA PEAK, 32° 55′; 72° 52′, in the Panjáb, Salt Range, 2 miles W. of the village of Deriála, in the Dhăr range . . . . . ab. 3,130 ft. Flem

No. 62. KARÁNGALI PEAK, 32° 55′; 73° 2′, in the Panjáb, Salt Range, N. of Chóia Sáidan Shah . . . . . 3,234 ft. G. T. S.

No. 63. ÁKRA, 32° 53′; 70° 37′, in the Păpjáb, S. of Bánnu.
Loc. *Tower Station* . . . . . 1,168 ft. Walk

No. 64. KÚSSAK FORT, 32° 53′; 73° 10′, in the Păpjáb, Salt Range.
Loc. *Măsjíd* . . . . . ab. 2,547 ft. Flem

No. 65. KATÁSS, 32° 52′; 72° 57′, in the Păpjáb, Salt Range, near Dillúr.
Loc. *Field W. of the village* . . . . . ab. 2,155 ft. Flem

No. 66. CHÓIA SÁIDAN SHAH, 32° 52′; 73° 2′, in the Păpjáb, Salt Range, N. of the Kiúra salt mines.
Loc. 1) *Mean level of the valley* . . . . . 2,168 ft. Schl., Rob.

8, Pistor. 1856, Dec. 21, 3h P.M. *A.* 27 945; 63·7; 14. Ágra. . . . 29 481; 69·6; 66 — 2,170
„ „ „ 4h „ „ 27 934; 62 2; 18. Gujranwála 29 448; 61 2, 26 — 2,166

Loc. 2) *Fakir's garden* . . . . . ab. 1,871 ft. Flem.

„ 3) *Chóia peak* . . . . . 2,626 „ Schl., Rob.

8, Pistor. 1856, Dec. 21, 5h P.M. *A.* 27 481, 58 3. Ágra 29·473; 69 4 – 2,623. Chóin Sáidan Shah 27 938; 60·9 = 2,628.

No. 67. Gárjok Peak, 32° 52′; 73° 24′, in the Pănjáb, Salt Range, near Jelálpur.

Loc. 1) *Top of the peak* . . . . . ab. 1,882 ft. Flem.

„ 2) *Jelálpur plain* . . . . . ab. 619 „ Flem.

No. 68. Mandakhél, 32° 51′; 71° 24′, in the Pănjáb, on the right shore of the Indus, 10 miles S.W. of Kussialgárh.

Loc. *Level of the Indus* . . . . . 707 ft. Walk.

No. 69. Sultán Khél Peak, 32° 51′; 71° 7′, in the Pănjáb, Lovagárh mountains.

Loc. *Top of the peak* . . . . . 4,282 ft. Walk.

No. 70. Kiúra, 32° 49′; 73° 3′, in the Pănjáb, Salt Range, about 10 miles N.N.W. of Pind Dádan Khan.

Loc. 1) *Entrance to the salt mines* . . . . . 1,077 ft. Schl., Rob.

8, Pistor. 1856, Dec 22, 2h P.M *A.* 29 150; 68·4; 26. Ágra 29 587; 69 1; 28 – 1,079
„ „ „ 3h „ „ 29 150; 68 7; 27 „ 29 583; 69·1; 25 – 1,075

Loc. 2) *Deputy Collector's house* . . . . . ab. 1,183 ft. Flem.

„ 3) *Tóber Másjíd* . . . . . ab. 2,141 „ Flem

No. 71. Thamivála, 32° 48′; 71° 41′, in the Pănjáb, E.S.E. of Kalabágh.

Loc. *Mean height of the village* . . . . . 1,608 ft. Schl., Ad.

11, Pistor. 1857, 6h 15m A.M. *A.* 28·153; 45·0; 77. Peshávr 28 800; 47 1, 70.

No. 72. Núrpur, 32° 47′; 72° 39′, in the Pănjáb, Salt Range.

Loc. 1) *Mean height of the village* . . . . . ab. 2,288 ft. Flem

„ 2) *Síkesar peak* . . . . . ab. 5,129 „ Flem.

No. 73. Námbal, 32° 46′; 71° 41′, in the Pănjáb, S.E. of Kalabágh.

Loc. *Mean height of the village* . . . . . 1,175 ft. Schl., Ad.

„ *ditto* . . . . . 1,173 „ Flem.

11, Pistor. 1857, Feb 16, 11h A.M. *A.* 28·886; 67 8. Ágra 29 414, 77 5.

No. 74. MARVÁNDI, 32° 46′; 70° 50′, in the Pănjáb, near the Kúram river.

Loc. *Tower Station S. of Marvándi* . . . . . 985 ft. Walk.

No. 75. MUSAKHÉL, 32° 43′; 71° 39′, in the Pănjáb, western parts of the Salt Range. S.E. of Kalabágh.

Loc. *Mean height of the plain* . . . . . ab. 706 ft. Flem

No. 76. LĂKÁI TÍJI PEAK, 32° 42′; 71° 7′, in the Pănjáb, Dársoli Gărh mountains.

Loc. *Top of the peak* . . . . . 2,691 ft. Walk

No. 77. KÁTHA MÚSRAL, 32° 38′; 72° 32′, in the Pănjáb, southern foot of the Salt Range . . . . . ab 627 ft. Flem

No. 78. KĂGLANVÁLA, 32° 37′; 71° 15′, in the Pănjáb, S. of Isakhél, on the right side of the Indus.

Loc. *Mean height of the village* . . . . . 862 ft. Schl., Ad.

11, Pistor. 1857, Feb. 18, 6h 30m P.M. *A.* 29 312; 63 9; 49 Peshaur 28 880, 66 6 54

No. 79. SÁYAD KHEL, 32° 36′; 70° 54′, in the Pănjáb, S. of the fort Láki.

Loc. *Tower Station* . . . . . 993 ft. Walk.

No. 80. UCHÁLI, 32° 35′; 71° 58′, in the Pănjáb, southern parts of the Salt Range

Loc. *Level of the salt lake* . . . . . ab. 2,404 ft. Flem

No. 81. KHÉRI PEAK, 32° 35′; 72° 19′, in the Pănjáb, southern parts of the Salt Range.

Loc. *Top of the peak* . . . . . ab. 3,090 ft. Flem.

No. 82. CHÍDERU, 32° 33′; 71° 48′, in the Pănjáb, southern foot of the Salt Range.

Loc. 1) *Below the village* . . . . . ab 660 ft. Flem

„ 2) *Zamáni peak* . . . . . ab 2,602 „ Flem

No. 83. GUJRÁT, 32° 32′; 74° 3′, in the Pănjáb, Jech Duáb, a walled town 8 miles from the right bank of the Chináb.

Loc. *Plain near the Government well* . . . . . 846 ft. Schl., Herm

10, Pistor. 1856 *B* — Símla; *C* = Ágra. Loc. Corr. − 2 ft

Dec. 20, 3h 45m P.M. *A.* 29 335; 67 6; 26. *B.* 23·280; 44 8, 58 + 201 − 848. *C.* 29 532; 71 8 23 − 3 843.

No. 84. NÁLLI, 32° 30′; 72° 24′, in the Pănjáb, southern foot of the Salt Range.

Loc. *A little below the village* . . . . . ab. 683 ft. Flem.

No. 85. BÁBAI PEAK, 32° 29′; 71° 8′, in the Pănjáb, E. of Ísa Khel.

Loc. *Top of the peak* . . . . . 2,858 ft. Walk.

No. 86. BÁHIN DÁRRA, 32° 29′; 70° 30′, in the Pănjáb, S.S.E. of Tarikhél.

Loc. *Hill Station* . . . . . 2,130 ft. Walk.

No. 87. RAMANIKHÉL, 32° 25′; 71° 7′, in the Pănjáb, N.E. of Paniála.

Loc. *Mean height of the village* . . . . . 1,760 ft. Schl., Ad.

11, Pistor. 1857, Feb. 19, 7h P.M. *A.* 28 312, 64 2, 28. Pesháur 28 820; 65·1; 40. Loc. Corr. — 20 ft.

No. 88. DAL, 32° 22′; 72° 52′, in the Pănjáb, Jech duáb, on the left side of the Jhílum.

Lo. *Mean height of the village* . . . . . 751 ft. Schl., Rob.

8, Pistor. 1856, Dec. 24, 5h P.M. *A.* 29 430; 60 8; 33. Ágra 29·528; 68·7; 23.

No. 89. SHEKH BÚDDIN PEAK, 32° 18′; 70° 47′, in the Panjáb, N.W. of Paniála.

Loc. *Top of the peak* . . . . . 4,598 ft. Schl., Ad.

„ *ditto* . . . . . 4,563 „ Walk.

11, Pistor 1857, Feb 21, 9h A.M. *A.* 25 500; 59·5 Pesháur 28·750; 53 5.

No. 90. CHÚNDA, 32° 16′; 70° 43′, in the Pănjáb, W. of Paniála.

Loc. *Mean height of the village* . . . . . 1,041 ft. Schl., Ad.

11, Pistor. 1857, Feb. 23, 1h 15m A.M. *A.* 29 020; 62 4; 20. Pesháur 28·770; 49 1, 35.

No. 91. HANDIÁLI, 32° 14′; 72° 19′, in the Pănjáb, Sindh Ságer duáb, W. of Sháhpur.

Loc. *Mean height of the plain* . . . . . 782 ft. Schl., Ad.

11, Pistor. 1857, March 3, 6h P.M. *A.* 29 079; 78 1; 26. Pesháur 28 580; 72 5, 41.

No. 92. SHÁHPUR, 32° 14′·0; 72° 32′·5 E, in the Pănjáb, on the left side of the Jhílum.

Loc. 1) *Mean height of the station* . . . . . 681 ft. Schl., Rob.

8, Pistor. 1856, Dec. 27, 10h A.M. *A.* 29 678; 52 9, 61. Ágra 29·697; 57·6; 57 = 675 ft.

„ „ „ 27, 5h P.M. „ 29·536; 63·3; 26. „ 29·567; 67·6; 33 = 687 „

Loc. 2) *Korána hill* . . . . . ab. 1,469 ft. Flem.

No. 93. GUJRANVÁLA, 32° 9′; 74° 8′, in the Pănjáb, Réchna duáb, 22 miles S. of Vazirabád.

Loc. *Mean height of the plain* . . . . . 686 ft. Schl., Herm.

9, Pistor. 1856, Dec. 21. $5^h\ 30^m$ P.M.

A. 29·457; 54 1; 68. Símla 23·217; 48·6; 40. + 149 = 692 ft. Ágra 29·485; 68 4; 24. 0 - 683 ft.

No. 94. ÁDI, 31° 52′; 71° 47′, in the Pănjáb, Sindh Ságer duáb, on the road from Dera Ismáel Khan to Sháhpur.

Loc. *Mean height of the plain* . . . . . 777 ft. Schl., Ad.

11, Pistor. 1857, March 2, 10^h A.M. *A.* 29·343; 77·9; 16. Pesháur 28 830; 65 6; 24.

No. 95. HÉTTU, 31° 50′; 71° 25′, in the Pănjáb, Sindh Ságer duáb, on the road from Dera Ismáel Khan to Sháhpur.

Loc. *Mean height of the plain* . . . . . 775 ft. Schl, Ad

11, Pistor. 1857, March 1, 10^h A.M. *A.* 29 378; 73 2; 18. Pesháur 28·860; 66 1; 50.

No. 96. SHÁHER KOT, or SHORKÓT, 31° 50′; 72° 7′, in the Panjáb, Réchna duáb, between Jhäng and Multán.

Loc. 1) *Base of the hill* . . . . . 658 ft. Schl., Rob.

8, Pistor. 1857, Jan. 2, 5^h P.M.

A. 29·564; 63 7; 55. Ágra 29·544; 61 9; 92 = 638. Pesháur 28 926; 49 2, 60 = 677

Loc. 2) *Top of the hill* . . . . . 718 ft. Schl., Rob

Trigonometrically measured.

No. 97. ČHĂHÁNIA, 31° 46′; 72° 22′, in the Pănjáb, Jech Duáb, 32 miles S. of Sháhpur

Loc. *Mean height of the place* . . . . . , 653 ft. Schl., Rob.

8, Pistor. 1856, Dec. 29, 5^h P.M. *A.* 29 390; 63 3; 24. Ágra 29 386; 70 2; 30.

No. 98. SÉRIN, 31° 40′; 71° 0′, in the Pănjáb, opposite Déra Ismáel Khan.

Loc. *Mean height of the plain* . . . . . 751 ft. Schl, Ad

11, Pistor. 1857, Feb. 28, $9^h\ 15^m$ A.M. *A.* 29 378; 59 0; 42. Pesháur 28 830; 68 1· 46

No. 99. LAHÓR, 31° 31′·1; 74° 14′·6 E, in the Panjáb, Bári duáb, on the left side of the Rávi.

Loc. *Dāk bángalo* . . . . . 839 ft. Schl, Herm

1856, Dec. 27, 6^h P.M. *A.* 29 414; 53·2; 63. Pesháur 28·949; 53·1; 15 = 842.
„ „ 28, 11 A.M. „ 29 327; 53·4; 67. „ 28 855; 53 6; 55 = 833
1857, Jan. 3, 10 A.M. „ 29·579; 62·2; 50. „ 29 119, 62 3, 26 = 841

No. 100. Firózpur, 30° 57′·1; 74° 38′·4, in the Pánjáb, on the left bank of the Sátlej.

Loc. *Mean height of the station* . . . . . 1,120 ft. P. C

No. 101. Ludhiána, 30° 55′·4; 75° 50′·2☥, in the Pánjáb, district of Sĕrhínd, near the left side of the Sátlej.

Loc. 1) *Level of the Sátlej* . . . . . 893 ft. Schl., Herm.

9, Pistor. 1857, Jan. 13. 8^{h} A.M. *A* 29·398; 53·4. Ágra 29·630; 51·8 = 872. Pesháur 29·008; 52·2 = 914.

Loc. 2) *Political residency* . . . . . 692 ft. Jacq.

No. 102. Kánna, 30° 40′; 76° 15′, in the Pánjáb, between Ludhiána and Ambála.

Loc. *Dak búngalo* . . . . . 960 ft. Schl., Herm.

9, Pistor. 1857, Jan. 14, 3^{h} P.M. *A*. 29·245; 59·4; 84. Ágra 29·564; 63·9; 76.

No. 103. Ambála, 30° 21′·4; 76° 48′·8☥, in the Pánjáb, a large military station.

Loc. 1) *Cistern of the late Dr. Tritton's barometer* . . . . . 1,026 ft. Schl., Herm

The detail upon which this result is based is given p. 52.

Loc. 2) *Mean height of the cantonment* . . . . . 1,022 ft. Schl., Herm.

No. 104. Lándi, 30° 11′; 76° 53′, in the Pánjáb, 16 miles S.E. of Ambála.

Loc. *Mean height of the village* . . . . . 1,034 ft. Ger.

No. 105. Kanipúra, 30° 2′; 76° 53′, in the Panjáb, 27 miles S.S.E. of Ambála.

Loc. *Mean height of the village* . . . . . 914 ft. Ger.

No. 106. Siamgárh, 29° 46′; 76° 58′, in Hindostán, 5 miles N. of Kărnál.

Loc. *Mean height of the village* . . . . . 955 ft. Ger.

No. 107. Kărnál, 29° 42′·3; 76° 58′·3☥, in Hindostán, 78 miles N. of Délhi.

Loc. 1) *Dak búngalo* . . . . . 912 ft. Schl., Herm.

9, Pistor. 1857, Jan. 16, 3^{h} 15^{m} P.M.

A. 29·284, 51·9, 90 Ágra 29·556; 65·3; 59 = 914. Pesháur 28·894; 58·7, 70 = 909.

Loc. 2) *Mean height of the cantonment* . . . . . 966 ft. Ger.

No. 108. Bháulpur, 29° 21′; 71° 43′, in the Pánjáb, a large native town near the left side of the Sátlej.

Loc. *Level of the Satlej* . . . . . 476 ft. Schl., Rob.

8, Pistor. 1857, Jan. 15, 4^{h} P.M. *A*. 29·760; 59·1; 73. Ágra 29·567; 62·1; 79.

No. 109. ÁHMEDPUR, 29° 9′; 71° 19′, in the Pănjáb, 32 miles W.S.W. of Bháulpur

Loc. *Mean height of the village* . . . . . 411 ft. Schl., Rob.

8, Pistor. 1857, Jan. 17, 5h 30m P.M. *A.* 29·756; 61 2; 37. Ágra 29·497; 63 0; 60.

No. 110. CHÁUDRI, 29° 0′; 70° 58′, in the Pănjáb, N.E. of Mithánkōt.

Loc. *Mean height of the plain* . . . . . 324 ft. Schl., Rob.

8, Pistor. 1857, Jan. 18, 5h P.M. *A.* 29 855; 61 5; 35 Ágra 29 504; 69 1, 33

No. 111. MÁMU, 28° 50′; 70° 52′, in Síndh, E. of Mithánkot.

Loc. *Mean height of the plain* . . . . . 342 ft. Schl., Rob

8, Pistor. 1857, Jan. 19, 8h A.M. *A.* 29 953, 39 9, 80 Ágra 29 607, 53 1, 61

No. 112. KHÁNPUR, 28° 40′; 70° 43′, in the Panjáb, 27 miles S.E. of Mithánkot.

Loc. *Mean height of the plain* . . . . . 329 ft. Schl., Rob

8, Pistor. 1857, Jan. 20, 9h A.M. *A.* 29 941; 56 7, 60. Ágra 29 587, 51 4, 54

No. 113. SHIKÁRPUR, 27° 55′; 68° 52′, in Sindh, on the right side of the Indus.

Loc. *Mean height of the village* . . . . . 250 ft. Graff

No. 114. SÁKKER, 27° 42′; 68° 51′, in Sindh, on the right side of the Indus.

Loc. 1) *Dāk bángalo* . . . . . 419 ft. Schl., Rob

7, Pistor. 1857, Feb. 3, 4h P.M. *A.* 29 193; 63 1. Ágra 29 245; 66 7

Loc. 2) *Level of the Indus at Sákker* . . . . . 353 ft. Schl., Rob

By trigonometric measurement.

No. 115. SÉVAN, 26° 25′; 67° 57′, in Sindh, a large town on the right side of the Indus.

Loc. *Dak bángalo* . . . . . 116 ft. Schl., Rob

7, Pistor. 1857, Feb. 15, 1h P.M. *A.* 29 737; 77 4, 55. Bombay 29 847, 83 2 71

No. 116. TRÁNI, 26° 24′; 67° 38′, in Sindh, on the southern border of the Mánchar lake, 10 miles W. of Sévan.

Loc. *Level of the lake* . . . . . 135 ft. Schl., Rob.

7, Pistor. 1857 Feb. 16, 1h P.M. *A.* 29 914, 81 5, 22. Ágra 29 382, 80 8, 39

No. 117. GURBÁN, 25° 4′; 67° 25′, in Sindh, 28 miles N.E. of Kărráchi.

Loc. *Mean height of the plain* . . . . . ab. 310 ft. Schl., Rob.

7, Pistor. 1857, Feb. 21, 4h P.M. *A.* 29 560; 86 5; 25. Bombay 29·288; 84·0; 78.

No. 118. ÁBU, 24° 45′; 72° 46′, in Rajvára, the highest peak in the Araválli range, 50 miles N.E. of Dísa.

Loc. *Top of the peak* . . . . . 3,850 ft. Bomb. Cal.

No. 119. ÚDEPUR, 21° 37′; 73° 46′, in Rajvára, 70 miles W. of Nímăch.

Loc. 1) *Undefined* . . . . . 2,064 ft. Scott.

„ 2) *Level of the railway* . . . . . 1,336 „ Ham.

No. 120. NÍMĂCH, 24° 27′·5; 74° 59′·0, in Rajvára, 155 miles N.W. of Máhu (Mhow).

Loc. *Mean height of the station* . . . . . 1,356 ft. Wils

No. 121. BHÚJ, 23° 17′; 69° 40′, in Kăch, the capital of this province.

Loc. 1) *Dak bángalo* . . . . . 281 ft. Schl., Rob.

7, Pistor. 1857, March 16, 10h A.M. *A.* 29·697; 83·8, 34. Bombay 29 945; 84 1; 70.

Loc. 2) *Hill fort* . . . . . 678 ft. Schl., Rob.

By trigonometric measurement.

No. 122. RAJKÓT, 22° 13′; 71° 7′, in Gujrát, 150 miles W. of Baróda.

Loc. *Entrance to the church* . . . . . 327 ft. Schl., Rob.

7, Pistor. 1857, March 22, 10h A.M. *A.* 29·587; 89 2; 14. Bombay 29·877; 85·4; 70.

AREA IV.

CENTRAL INDIA.

Meridional, from north to south: from the Ganges viâ Nágpur and Chánda to Koringa.

The principal portion of this extensive area is occupied by the Vindhia and Satpúra range and the entire river system of the Godáveri. With the exception of a few isolated, well-defined crests of some extent, its characteristic features are the plateaux.

Amarkántak, the most important of them, forms the watershed of the Mahanádi, Sōn, Tons, Johílla, and Nărbáda. The rivers, though large and full of water even half way from their mouth, are very irregular in the slopes of their beds, and are disturbed by frequent rapids, so that owing to these impediments, increased still further by the rocky character of the river beds or their banks, navigation is limited for the most part to the lower portions of their course.

For all the central parts of this area, the height of the land varies but little, even the valleys being on an average above 1,500 feet. But notwithstanding the generally high elevation of the district, its central position makes it a zone of maximum heat; and indeed, during the time of summer it belongs to the hottest regions of India, even of the globe.

No. 1. SANÍCHRI, 26° 23′·5; 78° 12′·1 ♄, in Bándelkhánd, N. of Gválior.
Loc. *Hill Station* . . . . . 910 ft. G. T. S.

No. 2. JHÁNKRI, 26° 18′·9; 78° 31′·3 ♄, in Bándelkhánd, 12 miles W. of the Send
Loc. *Hill Station* . . . . . 710 ft. G. T. S.

No. 3. GVÁLIOR, 26° 13′·2; 78° 9′·0 ♁, in Băndelkhánd, a large place 65 miles S. of Ágra.

Loc. *Entrance to the fort on the hill* . . . . . 1,111 ft. Schl., Ad.

6, Adie. 1855. Dec. 3, 5h 30m P.M. *A.* 29·103; 69·6; 33. Murár 29·457; 69·9; 32. 6 ft.

No. 4. MURÁR, 26° 13′; 78° 10′, in Băndelkhánd, cantonment of Gválior.

Loc. 1) *Mean height of the cantonment* . . . . . 773 ft. Schl., Rob.

4, Adie. 1855, Dec. 3. *B* = Ágra; *C* = Aligárh.

h m					
5 0 P.M.	*A.* 29·457; 73 0, 27.	*B.* 29 567; 74 3; 38.	— 2 — 762.	*C.* 29 485; 71 4; 61.	= 776.
5 30 „	„ 29 457, 69 9; 32.	„ 29·587; 73 8; 40.	— 2 — 781.	„ 29 485; 70 2; 62.	= 776.
6 0 „	„ 29 461, 61 5; 62.			„ 29 489; 68 7; 61.	= 776.
7 0 „	„ 29 477; 60 2; 56.			„ 29 497; 66·0, 67.	= 769.

Loc. 2) *Level of the railway* . . . . . 670 ft. Ham.

No. 5. RÁIPUR, 26° 8′·2; 78° 3′·8 ♁, in Băndelkhánd, near Gválior.

Loc. *Hill Station* . . . . . 1,303 ft. G.T.S.

No. 6. MAJHÁR, 26° 6′·3; 78° 27′·3 ♁, in Bandelkhánd, 8 miles W. of the Sēnd.

Loc. *Hill Station* . . . . . 1,112 ft. G.T.S.

No. 7. ÁNTRI, 26° 3′; 78° 11′, in Băndelkhánd, on the road between Gválior and Jhánsi.

Loc. 1) *Mean height of the village* . . . . . 981 ft. Schl., Rob.

6, Adie. 1856, Dec. 4. *B* = Ágra; *C* = Aligárh.

h					
12 Noon.	*A.* 29 308, 72 0, 28.	*B.* 29·646; 71 1; 44.	20 — 964.	*C.* 29 552; 66 6; 65.	— 15 = 971.
1 P.M.	„ 29 280; 71 5; 27.	„ 29 619; 72 0; 42.	— 20 — 966.	„ 29 532; 68 2; 63.	— 16 = 978.
2 „	„ 29 237; 71·5; 27.	„ 29 595; 73 0, 40.	18 = 988.		
3 „	„ 29 237; 74·7, 28.	„ 29 587, 72 7; 41.	15 — 984.	„ 29 501; 71 4; 60.	— 11 = 997.
5 „	„ 29 237; 70 0; 34.	„ 29 587, 71 6; 44.	— 8 — 989.	„ 29 497; 70 2; 63.	— 6 — 996.

Loc. 2) *Level of the railway at Ántri pass* . . . . . 960 ft. Ham.

No. 8. MAHARÁJPUR, 25° 53′·9; 78° 13′·3 ♁, in Băndelkhánd, S. of Gválior.

Loc. *Hill Station* . . . . . 1,097 ft. G.T.S.

No. 9. KARÁIA, 25° 53′·8; 77° 59′·3 ♁, in Băndelkhánd, 26 miles S.S.W. of Gválior.

Loc. *Hill Station* . . . . . 1,370 ft. G.T.S.

No. 10. SONÁRI, 25° 50′; 78° 22′, in Bándelkhánd, near the right side of the Send.

Loc. 1) *Mean height of the village* . . . . . 829 ft. Schl, Rob.

6, Adie. 1855, Dec. 5. *B* = Ágra: *C* = Alıgárh.

4h 30m P.M. *A.* 29·406; 75·2; 34. *B.* 29·575; 72·7; 52. — 4 = 818. *C.* 29·501, 71·4; 61. — 2 = 840

Loc. 2) *Level of the Sēnd* . . . . . 737 ft. Schl., Rob.

6, Adie. 1855, Dec. 5, 5h 20m P.M. *A.* 29·501, 67·6. Sonári 29·406; 74·0.

No. 11. GHÓRA, 25° 50′; 78° 21′, in Bándelkhánd, on the right side of the Send, an affluent of the Chámbál.

Loc. *Level of the railway on the South bank* . . . . . 640 ft. Ham.

No. 12. MÚSAPUR, 25° 46′·6; 80° 37′·4 ⨁, in Hindostán, 2 miles E. of the Ganges.

Loc. *Tower Station* . . . . . 166 ft. G.T.S.

No. 13. GOKALPÁRA, *T. S.*, 25° 45′·6; 79° 16′·4 ⨁, in Bándelkhánd, 2 miles S. of the Bétva, near its confluence with the Desán . . . . . 772 ft. G.T.S.

No. 14. DÁRIAPUR, 25° 42′·2; 78° 37′·5 ⨁, in Bándelkhánd, 8 miles N.E. of Dátteа.

Loc. *Hill Station* . . . . . 875 ft. G T S

No. 15. PÁRA, 25° 41′·1; 79° 39′·5 ⨁, in Bándelkhánd, 15 miles S. of the Bétva.

Loc. *Tower Station* . . . . . 713 ft. G.T S.

No. 16. PEPRÉNDI, 25° 37′·7; 80° 23′·3 ⨁, in Bándelkhánd, 14 miles N. of Bánda.

Loc. *Tower Station* . . . . . 495 ft. G T S.

No. 17. NARVÁR, *H. S.*, 25° 37′·4; 77° 54′·5 ⨁, in Bándelkhánd, right side of the Send, S. of Gválior . . . . . 1,572 ft. G T S.

No. 18. AMBÁBA, 25° 33′; 78° 37′, in Bándelkhánd, N.N.W. of Jhánsi.

Loc. *Mean height of the village* . . . . . 919 ft. Schl, Rob

6, Adie. 1855, Dec. 6, 5h 45m P.M *A.* 29·288, 68·0; 45. Aligarh 29·465, 67·3 — 2 ft

No. 19. ÁLGI, 25° 29′·8; 78° 20′·5 ⨁, in Bándelkhánd, 10 miles N.W. of Gohád.

Loc. *Hill Station* . . . . . 1,236 ft. G T S

No. 20. BHITÁRI, 25° 28′·1; 78° 43′·2♁, in Băndelkhánd, N. of the Sĕnd.

Loc. *Hill Station* . . . . . 1,136 ft. G. T. S.

No. 21. JHÁNSI, 25° 28′; 78° 35′, in Băndelkhánd, 130 miles N. of Ságer.

Loc. *Level of the railway* . . . . . 745 ft. Ham.

No. 22. PÁVIA, 25° 27′·3; 80° 43′·2♁, in Băndelkhánd, 18 miles S. of the Jámna.

Loc. *Tower Station* . . . . . 533 ft. G. T. S.

No. 23. NÁGONATH, *T. S.*, 25° 26′·9; 79° 19′·3♁, in Băndelkhánd, on the Desán, an affluent of the Bétva . . . . . 1,065 ft. G. T. S.

No. 24. ALLAHABÁD, 25° 26′·0; 81° 51′·9♁, in Hindostán, a large station at the confluence of the Ganges with the Jámna.

Loc. 1) *Compound of Berill's Hôtel* . . . . . 316 ft. Schl., Rob.

6, Adie. 1855, April 7. *B* = Ágra; *C* = Pátna.

10h A.M. *A.* 29 548; 85·3; 25. *B.* 29·209; 82·8, 30. + 8 = 328. *C.* 29·686; 81·7; 43. − 3 = 303.

Loc. 2) *Level of the Jámna* . . . . . 268 ft. Schl., Rob.

= 48 ft. below the compound of Berill's Hôtel; by aneroid.

No. 25. BÁRVA SÁGER, 25° 23′; 78° 45′, in Băndelkhánd, 9 miles S.E. of Jhánsi.

Loc. *Mean height of the village* . . . . . 832 ft. Schl., Rob

6, Adie. 1855, Dec. 9. *B* = Ágra; *C* = Aligárh.

11h A.M. *A.* 29·335; 67 6. *B.* 29 489; 66 9; − 7 = 798. *C.* 29·461; 63·7; − 6 = 865.

No. 26. SEÓNDA, 25° 18′·1; 80° 20′·7♁, in Băndelkhánd, 10 miles S. of Bánda.

Loc. *Fort* . . . . . 909 ft. G. T. S.

No. 27. MÁNANG, 25° 17′·5; 79° 42′·2♁, in Băndelkhánd, 51 miles W.S.W. of Bánda.

Loc. *Hill Station* . . . . . 1,227 ft. G. T. S.

No. 28. KATHÉRA, 25° 14′·3; 78° 56′·2♁, in Băndelkhánd, 8 miles E. of the Sĕnd.

Loc. *Hill Station* . . . . . 1,429 ft. G. T. S.

No. 29. LÁLAPUR, 25° 14′·2; 81° 4′·9♁, in Băndelkhánd, 7 miles S.W. of the Jámna.

Loc. *Hill Station* . . . . . 844 ft. G. T. S.

No. 30. RÁGALA, 25°.14′·1; 81° 35′·8 ♁, in Bándelkhánd, 3 miles S. of the Jámna.
Loc. *Hill Station* . . . . . 688 ft. G. T. S.

No. 31. GÓHULI, 25° 10′·4; 78° 24′·7 ♁, in Bándelkhánd, 40 miles S. of Dátteа.
Loc. *Hill Station* . . . . . 1,289 ft. G. T. S.

No. 32. MÁRFA, 25° 7′·0; 80° 41′·1 ♁, in Bándelkhánd, 40 miles S. of the Jámna.
Loc. *Fort* . . . . . 1,295 ft. G. T. S.

No. 33. DATIÁRI, *H. S.*, 25° 6′·4; 79° 21′·4 ♁, in Bándelkhánd, near the right bank of the Desán, an affluent of the Bétva . . . . . 1,231 ft. G. T. S.

No. 34. BOMÓRI, 25° 2′; 78° 50′, in Bándelkhánd, 20 miles N. of Téri.
Loc. *Mean height of the village* . . . . . 1,178 ft. Schl., Rob

6, Adie. 1855, Dec. 10. *B* = Ágra; *C* = Aligárh.
5h P.M. *A.* 28·910; 68·2; 37. *B.* 29·445; 76·1; — 12 = 1,170. *C.* 29 367; 70 7; — 10 = 1,186

No; 35. KARTÁR, 25° 1′·5; 80° 19′·2 ♁, in Bándelkhánd, 24 miles S. of Seónda.
Loc. *Hill Station* . . . . . 1,180 ft. G T S

No. 36. MHÁU, 25° 0′·7; 81° 14′·8 ♁, in Bándelkhánd, W. of Mírzapur.
Loc. *Hill Station* . . . . . 1,447 ft. G. T. S.

No. 37. KALÍNJER, 25° 0′; 80° 29′, in Málva, S.S.E. of Bánda.
Loc. *Mean height of the village* . . . . . ab. 2,000 ft. Scott

No. 38. SOHÁGI, 24° 59′; 81° 43′, in Hindostán, 40 miles S.W. of Allahabád.
Loc. 1) *Mean height of the village* . . . . . 508 ft. Schl, Rob.

7, Thermo-barom. 1856, Feb. 14. *B* = Agra; *C* = Aligárh.
h
2 P.M. *A.* 211·50 Fahr.; 82 6; 31. *B.* 29·449; 74·7; 17. + 9 = 496. *C.* 29·382, 72 7, 51. + 12 = 519.
5 „ „ 211·48 „ ; 77·6; 34. „ 29·445; 75·0; 14. + 3 = 493. „ 29 371; 73 0; 53. + 5 = 524.

Loc. 2) *Top of the Sohági ghát* . . . . . 1,240 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 14. 8h A.M. *A.* 210°·28 Fahr.; 73 2; 40. Sohági 29 642; 76 6; + 11 ft.

Loc. 3) *Contact of the lime with the sandstone rocks* . . . . . 654 ft. Schl., Rob.
= 146 ft. above the mean height of Sohági; by aneroid.

Loc. 4) *Level of the Tons, N. of Sohági* . . . . . 409 ft. Schl, Rob.
= 99 ft. below the mean height of Sohági; by aneroid.

No. 39. THÁNELA, 24° 57′·9; 79° 44′·1 ♁, in Bándelkhánd, 8 miles E. of Chátterpur.
Loc. *Hill Station* . . . . . 1,179 ft. G. T. S.

No. 40. KACHÁR, 24° 56′·7; 81° 1′·9 ♁, in Bándelkhánd, 10 miles N.N.E. of Pirsínghpur.
Loc. *Hill Station* . . . . . 1,533 ft. G. T. S.

No. 41. RÁJAPUR HILL, 24° 55′; 82° 45′, in Bahár, about 18 miles S. of Mírzapur.
Loc. *Top of the hill* . . . . . 1,069 ft. I. A. 88.

No. 42. DÓNRI, 24° 53′·9; 81° 10′·3 ♁, in Bándelkhánd, 9 miles S.E. of Kachár.
Loc. *Hill Station* . . . . . 1,480 ft. G. T. S.

No. 43. SIRMÁUL, 24° 53′·1; 81° 22′·7 ♁, in Bándelkhánd, 3 miles E. of the Tons.
Loc. *Hill Station* . . . . . 1,180 ft. G. T. S.

No. 44. ÁMUI, 24° 53′; 82° 40′, in Bahár, about 15 miles S. of Mírzapur.
Loc. *Mean height of the village* . . . . . 818 ft. Hook.

No. 45. GÁRH, 24° 52′; 81° 39′, in Bándelkhánd, 8 miles S. of the Tons.
Loc. *Mean height of the village* . . . . . 1,165 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 13. *B* = Ágra; *C* = Ahgárh.
4h 30m P.M. *A*. 209 97 Fahr., 85 5, 24. *B*. 29 233, 82 9; 25. − 13 = 1,119. *C*. 29 170; 79 0; 50. − 10 = 1,180.

No. 46. DÁGRI, 24° 51′·1; 80° 40′·7 ♁, in Bándelkhánd, 12 miles E. of Pirsínghpur.
Loc. *Hill Station* . . . . . 1,645 ft. Schl., Rob.

No. 47. KÁTTRA, 24° 51′, 82° 9′, in Bándelkhánd, 3 miles E. of the Bíland.
Loc. *Undefined* . . . . . 446 ft. Frankl.

No. 48. BHORÁJ, *H. S.*, 24° 50′·5; 79° 2′·1 ♁, in Bándelkhánd, 25 miles W. of the Desán, an affluent of the Bétva . . . . . 1,438 ft. G. T. S.

No. 49. NAIAGÁRHI, 24° 50′; 81° 46′, in Bándelkhánd, 18 miles N.W. of Khátkárri.
Loc. *Undefined* . . . . . 942 ft. Frankl.

No. 50. TILÓTHO, 24° 49′; 84° 5′, in Bahár, 11 miles S.E. of Sásseram.

Loc. *Mean height of the village* . . . . . 395 ft. Hook.

No. 51. SIMÉRIA, 24° 48′; 81° 9′, in Bándelkhánd, 4 miles W. of the Tons.

Loc. *Mean height of the village* . . . . . 935 ft. Frankl

No. 52. PIRSÍNGHPUR, 24° 48′; 80° 58′, in Bándelkhánd, 10 miles W. of Simèria.

Loc. *Mean height of the village* . . . . . 990 ft. Frankl

No. 53. DHANDKÚRA, 24° 47′·6; 78° 42′·3 ⛰, in Bándelkhánd, 18 miles N.W. of Téri

Loc. *Hill Station* . . . . . 1,369 ft. G T S.

No. 54. HANUMÁNA, 24° 46′; 82° 6′, in Bandelkhánd, 10 miles S. of the Bíland.

Loc. *Undefined* . . . . . 1,145 ft. Frankl.

No. 55. GHORAVÁL, 24° 46′; 82° 48′, in Bahár, N of the Kaimúr hills.

Loc. *Mean height of the village* . . . . . 905 ft. Hook

No. 56. SÁRANG, 24° 45′·7; 80° 20′·4 ⛰, in Bandelkhánd, 12 miles E. of Púnna.

Loc. *Hill Station* . . . . . 1,749 ft. G T S.

No. 57. TÉRI, or TIKAMGÁRH, 24° 44′; 78° 50′, in Bandelkhánd, a large place, 72 miles N.W. of Ságer.

Loc. *Entrance to the large temple* . . . . . 1,312 ft. Schl., Rob.

6, Adie. 1855, Dec. 11. *B* Ágra; *C* = Ahgárh.

5h 30m P.M. *A.* 28 808; 70 9; 33. *B.* 29·177; 74·8; - - 12 - 1,303. *C.* 29 402, 69 6, - 11 1,321

No. 58. KOTÁR KAIMÁRI, *H. S.*, 24° 43′·3; 80° 59′·4 ⛰, in Bandelkhánd, near an affluent of the Tons . . . . . 1,504 ft. G T S

No. 59. HÁTI, 24° 43′; 80° 51′, in Bándelkhánd, between Pirsínghpur and Sohavál.

Loc. *Mean height of the village* . . . . . 996 ft. Frankl.

No. 60. SHAHGÁNJ, 24° 42′; 82° 58′, in Bahár, 10 miles N. of the Són.

Loc. *Undefined* . . . . . 1,102 ft. Hook

No. 61. MÁNGOVA, 24° 41′; 81° 34′, in Bändelkhánd, 19 miles N.E. of Ríma (Rewah).

Loc. *Dak búngalo* . . . . . 1,154 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 12, 7h P.M. *A.* 210° 15 Fahr.; 73·2; 32. Aligárh 29·237; 73·8; 57. + 8.

No. 62. ANDHIÁRI, 24° 41′·1; 78° 12′·9 ⅄, in Bändelkhánd, near the right bank of the Bétva.

Loc. *Hill Station* . . . . . 1,709 ft. G. T. S.

No. 63. AKBÁRPUR, 24° 39′; 83° 59′, in Bahár, on the left side of the Sōn, 4 miles N.E. of Rotásgárh . . . . . 403 ft. Hook.

No. 64. DÍBAR, 24° 38′; 82° 55′, in Bahár, 6 miles S.W. of Shahgánj.

Loc. *Hill Station* . . . . . 1,769 ft. I. A. 89.

No. 65. RŪMP, 24° 38′; 83° 7′, in Bahár, at the northern foot of the Ek Páua Ghāt, in the Kaimúr range . . . . . 1,090 ft. Hook.

No. 66. ROTÁSGÁRH, 24° 37′·6; 84° 55′·9, in Bahár, near the left side of the Sōn, 22 miles S. of Sásseram.

Loc. *Palace* . . . . . 1,489 ft. Hook.

No. 67. POTÉNDA, *H. S.*, 24° 37′·4; 80° 56′·1 ⅄, in Bändelkhánd, 20 miles N.W. of Ríma (Rewah) . . . . . 1,050 ft. G. T. S.

No. 68. DARGÁVA, 24° 37′·2; 79° 0′·4 ⅄, in Bändelkhánd, 4 miles W. of the Desán.

Loc. *Hill Station* . . . . . 1,531 ft. G. T. S.

No. 69. SURHÁN GHĀT, 24° 37′; 83° 0′, in Bahár, about 4 miles N. of the Sōn.

Loc. *Top of the ghāt* . . . . . 1,563 ft. I. A. 89.

No. 70. CHÁNDLA, *H. S.*, 24° 36′·6; 79° 26′·3 ⅄, in Bändelkhánd, 14 miles S.E. of the Desán, an affluent of the Bétva . . . . . 1,875 ft. G. T. S.

No. 71. DÁDAR, 24° 36′·2; 81° 11′·3 ⅄, 15 miles N.W. of Ríma (Rewah).

Loc. *Hill Station* . . . . . 1,449 ft. G. T. S.

No. 72. SOHAVÁL, 24° 35′; 80° 48′, in Bándelkhánd, 10 miles W. of Patrahát.
Loc. *Mean height of the village* . . . . . 985 ft. Frankl.

No. 73. NAGÁUND, 24° 34′; 80° 37′, in Bándelkhánd, S.E. of Pánna.
Loc. *Mean height of the village* . . . . . 1,025 ft. Frankl.

No. 74. SÚLKUN, 24° 34′; 83° 4′, in Bahár, 9 miles S. of the fort Bijegárh.
Loc. *Mean height of the village* . . . . . 684 ft. Hook.

No. 75. BÚRVA, 24° 33′·3; 81° 27′·9 ✝, in Bándelkhánd, 9 miles E. of Rima (Rewah).
Loc. *Hill Station* . . . . . 1,361 ft. G. T. S.

No. 76. GIRVÁR, 24° 33′; 80° 26′, in Bándelkhánd, 18 miles S. of Pánna.
Loc. *Mean height of the village* . . . . . 1,142 ft. Frankl.

No. 77. TÚRA, 24° 33′; 83° 46′, in Bahár, on the Sōn, above Akbárpur.
Loc. *Mean height of the village* . . . . . 453 ft. Hook.

No. 78. RÍMA (REWAH), 24° 32′; 81° 17′, in Bándelkhánd, 130 miles S.W. of Allahabád.
Loc. *Entrance to the fort* . . . . . 1,06[1] ft. Schl., Rob.
7, Thermo-barom. 1856, Feb. 11, 7[h] P.M. *A.* 210° 37 Fahr.; 71 2; 36. Aligárh 29 276; 73 0, 50. + 6 ft

No. 79. SÉRIAS GHĀT, 24° 32′; 78° 15′, in Málva, on the Bétva, an affluent of the Jámna.
Loc. *Level of the railway* . . . . . 1,008 ft. Ham

No. 80. PÍPRA, 24° 31′; 83° 26′, in Bahár, on the left side of the Son.
Loc. *Mean height of the village* . . . . . 587 ft. Hook.

No. 81. PANCHADÚRMA, 24° 31′; 83° 32′, in Bahár, on the left side of the Sōn.
Loc. 1) *Mean height of the village* . . . . . 492 ft. Hook.
„ 2) *Level of the Sōn above Panchadúrma* . . . . . 482 „ Hook.

No. 82. KOSDÉRA, 24° 31′; 83° 39′, in Bahár, near the left bank of the Sōn.
Loc. *Mean height of the village* . . . . . 445 ft. Hook.

No. 83. LOHARGÁŨ, 24° 30′; 80° 20′, in Bändelkhánd, S. of Pánna.
Loc. *Mean height of the village* . . . . . 1,157 ft. Frankl.

No. 84. KUNCH, 24° 30′; 83° 6′, in Bahár, on the eastern end of the Kaimúr hills.
Loc. *Mean height of the village* . . . . . 561 ft. Hook.

No. 85. NÁRU, 24° 29′·7; 80° 56′·5 ⏚, in Bandelkhánd, 30 miles N.W. of Ramnágger.
Loc. *Hill Station* . . . . . 2,035 ft. G. T. S.

No. 86. KÓTA, 24° 29′; 83° 4′, in Bahár, near the left bank of the Sōn.
Loc. *Mean height of the village* . . . . . 541 ft. Hook.

No. 87. DHARKÁNA, *H. S.*, 24° 28′·0; 80° 32′·2 ⏚, in Bándelkhánd, 56 miles S.E. of Pánna . . . . . 1,918 ft. G. T. S.

No. 88. DÁLIPUR, *H. S.*, 24° 27′·0; 79° 8′·3 ⏚, in Bändelkhánd, 10 miles E. of the Desán, an affluent of the Bétva . . . . . 1,678 ft. G. T. S.

No. 89. NÍNGA, *H. S.*, 24° 26′; 83° 1′, in Bahár, on the right side of the Rehánd, an affluent of the Sōn . . . . . 1,466 ft. I. A. 89.

No. 90. MÁHEVA, 24° 24′; 80° 10′, in Bändelkhánd, S. of Pánna.
Loc. *Undefined* . . . . . 1,107 ft. Frankl.

No. 91. JALIADHÁR, *H. S.*, 24° 22′·4; 81° 23′·3 ⏚, in Málva, 10 miles E.S.E. of Rima (Rewah) . . . . . 2,238 ft. G. T. S.

No. 92. PÁTNA, 24° 20′·1; 78° 36′·2 ⏚, in Bändelkhánd, 60 miles N. of Ságer.
Loc. *Hill Station* . . . . . 1,900 ft. G. T. S.

No. 93. CHÁPRI, 24° 18′·8; 82° 12′·8 ⏚, in Bahár, 20 miles S. of the Sōn.
Loc. *Hill Station* . . . . . 1,898 ft. G. T. S.

No. 94. PÓKRA, 24° 18′·8; 82° 27′·7 ⅄, in Bahár, 16 miles S. of the Son.

Loc. *Hill Station* . . . . . 2,245 ft. G. T. S.

No. 95. PÓPPERA GHĀT, 24° 18′; 81° 16′, in Málva, in the western parts of the Kaimur range.

Loc. *Top of the ghāt* . . . . . 1,560 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 11 *B* = Ágra; *C* = Aligárh.

7h 30m A.M. *A*. 209°·59 Fahr.; 55·6. *B*. 29·445; 58·6; 54. + 27 = 1,573 ft. *C*. 29 323; 59·7; 60. + 23. = 1,547 ft.

No. 96. TÍGRA, 24° 18′; 79° 59′, in Bándelkhánd, 10 miles S.E. of the Sonár.

Loc. *Undefined* . . . . . 1,019 ft. Frankl

No. 97. KAIMÚR, *H. S.*, 24° 17′·1; 81° 8′·4 ⅄, in Málva, on the western parts of the Kaimúr range . . . . . 2,320 ft. G. T. S.

No. 98. MÁIHAR, *H. S.*, 24° 17′·0; 80° 42′·8 ⅄, in Bándelkhánd, 32 miles W.S.W. of Rúna (Rewah) . . . . . 2,039 ft. G. T. S.

No. 99. HINÁUTA, 24° 17′; 81° 15′, in Málva, southern foot of the Kaimúr range.

Loc. *Southern foot of the Kaimúr range* . . . . . 1,265 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 11. *B* = Ágra; *C* = Aligárh.

6h 40m A.M. *A*. 210°·06 Fahr.; 50 7; 65. *B*. 29·434; 56 8; 60. + 2 = 1,273 ft. *C*. 29·315; 57 7, 62. + 3 = 1,256 ft.

No. 100. PÁTRA, *H. S.*, 24° 16′·8; 81° 7′·8 ⅄, in Málva, in the western parts of the Kaimúr range . . . . . 2,307 ft. G. T. S.

No. 101. GÁRREHO, 24° 16′; 79° 49′, in Málva, 6 miles S. of the Sonár.

Loc. *Undefined* . . . . . 1,058 ft. Frankl.

No. 102. BĂDVÁR, 24° 16′; 78° 20′, in Málva, W. of Lállatpur.

Loc. *Level of the railway* . . . . . 1,250 ft. Ham.

No. 103. KÚSMAR, 24° 14′·8; 79° 19′·4 ⅄, in Málva, 12 miles E. of Shahgárh.

Loc. *Hill Station* . . . . . 1,892 ft. G. T. S.

No. 104. RAMNÁGGER, 24° 13′; 81° 10′, in Málva, N. of the Sōn, on one of its affluents.

Loc. *Mean height of the plain* . . . . . 1,172 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 10. *B* = Ágra; *C* = Aligárh.

3h 45m P.M. *A.* 210°·13 Fahr.; 76 6; 28. *B.* 29 343; 79 9; 22. — 17 = 1,154 ft. *C.* 29·284; 76·5; 35. — 15 = 1,189 ft.

No. 105. HÁURI, *H. S.*, 24° 12′·3; 82° 42′·8 ⅄, in Bahár, 14 miles N. of Sáipur, a village on the Rihánd . . . . . 1,910 ft. G. T. S.

No. 106. BÁMBA, *H. S.*, 24° 11′; 83° 2′, in Bahár, a hill on the right side of the Rihánd, an affluent of the Sōn . . . . . 1,571 ft. I. A. 89.

No. 107. DEÓRA, 24° 9′; 81° 13′, in Bahár, on the left side of the Sōn.

Loc. *Level of the Sōn* . . . . . 1,038 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 10. *B* = Ágra; *C* = Aligárh.

9h A.M. *A.* 210° 54 Fahr.; 67 3; 10. *B.* 29 457; 67 4; 38 = 1,037 ft. *C.* 29 363; 62·0; 58 = 1,038 ft.

No. 108. HÁTTA, 24° 8′; 79° 37′, in Málva, on the right side of the Sonár.

Loc. *Undefined* . . . . . 1,109 ft. Frankl.

No. 109. TIKORÍA, *H. S.*, 24° 7′·7; 79° 52′·9 ⅄, in Málva, in a range of hills, between the Biármi and Pátna valleys . . . . . 1,764 ft. G. T. S.

No. 110. TÍNSMAL, 24° 7′·2; 78° 58′·8 ⅄, in Málva, 20 miles N.E. of Ságer.

Loc. *Hill Station* . . . . . 2,219 ft. G. T. S.

No. 111. BARÓL, 24° 6′; 78° 53′, in Málva, 16 miles N.N.E. of Ságer.

Loc. *Mean height of the village* . . . . . 1,651 ft. Schl., Rob.

6, Adie. 1855, Dec. 13. *B* = Ágra; *C* = Aligárh.

3h P.M. *A.* 28 378; 76·5; 16. *B.* 29 390; 74 3. — 33 = 1,632 ft. *C.* 29·335; 71 2. — 22 = 1,670 ft.

No. 112. BÚDHON, 24° 5′·1; 78° 30′·2 ⅄, in Málva, 20 miles N.W. of Ságer.

Loc. *Hill Station* . . . . . 1,940 ft. G. T. S.

No. 113. MARVÁS, 24° 5′·0; 81° 45′·6 ⅄, in Málva, 25 miles E. of the Son.

Loc. *Hill Station* . . . . . 1,830 ft. G. T. S.

No. 114. GÓRA, 24° 5′·0; 83° 13′·2 ✝, in Bahár, 5 miles S. of the Son.
Loc. *Hill Station* . . . . . 1,868 ft. G. T. S

No. 115. BEOHÁRI, 24° 4′·7; 81° 14′·8 ✝, in Málva, 17 miles S.E. of Rammágger.
Loc. 1) *Mean height of the village* . . . . . 1,348 ft. Schl., Rob

7, Thermo-barom. 1856, Feb. 9. *B* = Ágra, *C* = Aligárh.
2h P.M. *A*. 209°·88 Fahr.; 73·2; 30. *B*. 29·394; 75·6; 31. — 32 = 1,330 ft. *C*. 29·335; 72 1 54 29 = 1,365 ft

Loc. 2) *Top of the hill at Beohári* . . . . . 2,019 ft. G. T. S

No. 116. LAKANPÚRA, *H. S.*, 24° 2′·8; 80° 46′·4 ✝, in Málva, N. of the Mahanádi, an affluent of the Sōn, 10 miles S. of Badánpur . . . . . 1,833 ft. G. T. S

No. 117. GURVÁNI, 24° 1′·5; 82° 16′·5 ✝, in Bahár, 50 miles S. of the Son.
Loc. *Hill Station* . . . . . 2,121 ft. G. T. S

No. 118. RANGÍR, 24° 0′·3; 79° 25′·0 ✝, in Málva, on the Sonár, near Nársinghgárh.
Loc. *Hill Station* . . . . . 1,236 ft. G. T. S

No. 119. ÁMUA, 24° 0′·0; 80° 28′·3, in Málva, 24 miles N. of Belhári.
Loc. *Hill Station* . . . . . 2,176 ft. G. T. S

No. 120. NÁRSINGHGHÁR, 24° 0′; 79° 23′, in Málva, on the right side of the Sonar.
Loc. *Undefined* . . . . . 1,240 ft. Frankl

No. 121. SEVÁRI, *H. S.*, 23° 58′·4; 83° 44′·2 ✝, in Bahár, near the Kanhára, an affluent of the Sōn . . . . . 1,980 ft. G. T. S

No. 122. PÁSTHU, 23° 55′; 81° 26′, in Bahár, S.E. of Beohári.
Loc. *Mean height of the village* . . . . . 1,476 ft. Schl., Rob

7, Thermo-barom. 1856, Feb. 8, 5h P.M. *A*. 209°·70 Fahr., 75·0; 36. Ahgárh 29 327, 72 3, 52 15 ft

No. 123. PATHERÍA, 23° 55′; 79° 13′, in Málva, 2 miles E. of the Sonár.
Loc. *Dák bángalo* . . . . . 1,349 ft. Schl, Ad

6, Adie. 1855, Dec. 19, 7h 10m P.M. *A*. 28 871; 60 1. Ahgárh 29 485, 62 2; 72. + 11 ft

No. 124. Dóda, or Dódur, 23°·55′; 57° 10′, in Málva, 51 miles S. of Nímăch.

Loc. *Mean height of the village* . . . . . 1,482 ft. Wils.

No. 125. Satería, 23° 54′·4; 79° 37′·9 ⏄, in Málva, 8 miles W. of the Biármi.

Loc. *Hill Station* . . . . . 1,642 ft. G. T. S.

No. 126. Sáipur, 23° 54′; 79° 3′, in Málva, 20 miles E. of Ságer.

Loc. *Mean height of the village* . . . . . 1,507 ft. Schl., Ad.

„ *Undefined* . . . . . 1,368 „ Frankl.

6, Adic. 1855, Dec. 19. *B* = Ágra; *C* = Aligárh.

$2^h\ 20^m$ P.M. *A*. 28·662; 75·2. *B*. 29·548; 72 9; 43. — 38 — 1,493 ft. *C*. 29·481; 68·7; 63. — 34 = 1,521 ft.

No. 127. Bikáiri, 23° 53′; 79° 13′, in Málva, left side of the Sonár.

Loc. *Undefined* . . . . . 1,189 ft. Frankl.

No. 128. Parénia, 23° 52′; 78° 56′, in Málva, E. of Ságer.

Loc. *Mean height of the village* . . . . . 1,570 ft. Frankl.

No. 129. Dámo, 23° 51′; 79° 27′, in Málva, a civil station, 46 miles E. of Ságer.

Loc. *Dak bángalo* . . . . . 1,374 ft. Schl., Ad.

6, Adic 1855, Dec. 20, 6^h P.M. *A*. 28·851; 60·8. Alıgárh 29·508; 65·3; 69. — 8 ft.

No. 130. Ságer, 23° 50′·2; 78° 43′·4 ⏄, in Málva, a large station on the Béssi.

Loc. 1) *Dak bángalo* . . . . . 1,880 ft. Schl., Rob.

The detail of the observations, upon which this result is based, is given p. 57.

Loc. 2) *Mean height of the town* . . . . . 1,866 ft. Frankl.

„ 3) *Mean height of the cantonment* . . . . . 1,906 „ Frankl.

„ 4) *Residency* . . . . . 1,976 „ Frankl.

„ 5) *Top of the hill behind Lieut. Waddington's house* . . 2,121 „ G. T. S.

No. 131. Gárhia, 23° 49′·8; 78° 45′·3 ⏄, in Málva, near Ságer.

Loc. *Hill Station* . . . . . 2,094 ft. G. T. S.

No. 132. SALÁIA, or GANESGÁRH, *H. S.*, 23° 49′·9; 79° 55′·1 ♁, in Málva, 14 miles E. of the Biármi . . . . . 1,739 ft. G T S

No. 133. TEÓNDA, 23° 48′·5; 78° 10′·6 ♁, in Málva, W. of Ratgárh.
Loc. *Hill Station* . . . . . 1,953 ft. G. T. S !

No. 134. MARCHÁRI, 23° 48′·2; 82° 52′·8 ♁, in Bahár. W. of Pálamo.
Loc. *Hill Station* . . . . . 2,336 ft. G T S

No. 135. GÚGOR, 23° 48′; 81° 27′, in Málva, N.E. of Bandugárh fort
Loc. *Mean height of the village* . . . . . 1,533 ft. Schl., Rob
7, Thermo-barom. Feb. 7, 4h 30m P.M. *A.* 209° 67 Fahr.; 71 4; 42. Aligarh 29 375; 73 4, 50 20 ft

No. 136. JÁURA, 23° 48′; 75° 10′, in Málva, 60 miles S. of Nímach.
Loc. *Mean height of the village* . . . . . 1,437 ft. Wils

No. 137. GARRAKÓTA, 23° 47′; 79° 1′, in Málva, E.S.E. of Sager
Loc. *Mean height of the village* . . . . . 1,271 ft. Frankl

No. 138. HIMILÍA, *H. S.*, 23° 45′·0; 79° 19′·9 ♁, in Málva, near an affluent of the Sonár, 18 miles S. of Nársinghgárh . . . . . 1,540 ft. G T S

No. 139. LUL, *H. S.*, 23° 44′·9; 82° 29′·5 ♁, in Bahár, 18 miles W of the Rihánd, an affluent of the Són . . . . . 3,089 ft. G T S

No. 140. PÉNDERA, 23° 42′; 81° 57′, in Málva, N.E. of Amarkántak.
Loc. *Mean height of the village* . . . . . 2,101 ft. Schl, Rob

7, Thermo-barom. 1856, Jan. *B* = Ágra; *C* = Alıgárh.

Jan. 28, 1h P.M.	*A.* 208°·58 Fahr.; 79·0; 36.	*B.* 29·422; 66·7; 45. — 19 = 2,086.	*C.* 29 386, 63 7, 70	18 = 2,139.
„ 29, 5h „	„ 208°·61 „ 68·4; 62.		„ 29 327, 65 1 73	31 = 2,078

No. 141. PÉNDERA GHÁT, 23° 41′; 81° 55′, in Málva, W. of Péndera.
Loc. *Top of the ghát* . . . . . 3,498 ft. Schl., Rob

7, Thermo-barom. 1856, Jan. 24. *B* = Ágra; *C* = Alıgárh.
3h 30m P.M. *A.* 206° 10 Fahr.; 70·5. *B.* 29·441; 73·6; 33. — 88 = 3,491 ft. *C.* 29 351; 71·5, 52 85 = 3,504 ft

No. 142. RÉLI, 23° 41′; 79° 0′, in Málva, a village with a thánah, on the left side of the Sonár.

Loc. *Entrance to the large temple* . . . . . 1,524 ft. Schl., Rob.

4, Adie. 1855, Dec. 20. *B* = Ágra; *C* = Aligárh.

1h 30m P.M. *A* 28 678; 72·3. *B*. 29·579; 71·6. — 24 = 1,517 ft. *C*. 29 497; 68·7. — 22 = 1,530 ft.

No. 143. RÁMPUR, *H. S.*, 23° 40′·7; 81° 3′·1 ⏚, in Málva, 2 miles E. of the large fort Bandugárh . . . . . 2,436 ft. G. T. S.

No. 144. MÁNDRA, 23° 38′·7; 79° 5′·5 ⏚, in Málva, near the Sonár.

Loc. *Hill Station* . . . . . 1,724 ft. G. T. S.

No. 145. TINS, 23° 38′·4; 78° 26′·1 ⏚, in Málva, 8 miles S. of Ratgárh.

Loc. *Hill Station* . . . . . 2,345 ft. G. T. S.

No. 146. TURÉR, 23° 38′·1; 84° 0′·1 ⏚, in Bahár, S.W. of Pálamo.

Loc. *Hill Station* . . . . . 3,107 ft. G. T. S.

No. 147. RANGÍR, 23° 38′; 78° 53′, in Málva, 15 miles S.E. of Ságer.

Loc. *Mean height of the village* . . . . . 1,448 ft. Frankl.

No. 148. BÚLBUL, 23° 37′·8; 84° 25′·3 ⏚, in Bahár, S.E. of Pálamo.

Loc. *Hill Station* . . . . . 3,354 ft. G. T. S.

No. 149. GÓBRA, 23° 37′·1; 83° 28′·0 ⏚, in Bahár, N.E. of Sirgúja.

Loc. *Hill Station* . . . . . 3,237 ft. G. T. S.

No. 150. JÁBERA, 23° 37′; 79° 46′, in Málva, N. of Jáblpur.

Loc. *Mean height of the village* . . . . . 1,278 ft. Schl., Ad.

6, Adie. 1855, Dec. 22. *B* = Ágra; *C* = Aligárh.

5h 20m P.M. *A* 28 863; 69·8; 39. *B*. 29·504; 71·8; 55. — 12 = 1,272 ft. *C*. 29·422; 67·5; 65. — 11 = 1,283 ft.

No. 151. JAISINÁGGER, 23° 37′; 78° 33′, in Málva, S.W. of Ságer.

Loc. *Mean height of the village* . . . . . 1,869 ft. Frankl.

No. 152. MURERGÁRH, *H. S.*, 23° 35′·6; 81° 56′·8 ⏚, in Málva, 2 miles E. of the Banás, an affluent of the Sōn . . . . . 3,074 ft. G. T. S.

No. 153. CHÁMKI, 23° 34′·2; 81° 37′·3 ⏚, in Málva, 22 miles E. of the Johílla.
Loc. *Hill Station* . . . . . 2,309 ft. G. T. S.

No. 154. CHÁNDPUR, 23° 34′; 79° 1′, in Málva, 8 miles S. of Reli.
Loc. *Mean height of the village* . . . . . 1,501 ft. Frankl

No. 155. PÚNCHI, 23° 32′·1; 80° 37′·4 ⏚, in Málva, S. of the Datila nalah.
Loc. *Hill Station* . . . . . 2,342 ft. G. T. S.

No. 156. SINGRÁMPUR PASS, 23° 32′; 79° 47′, in Málva.
Loc. *Top of the pass* . . . . . 1,437 ft. Schl., Ad.
= 23 ft. above Singrámpur; by aneroid.

No. 157. NARMÁU, 23° 30′·3; 78° 48′·9 ⏚, in Málva, S.S.E. of Ságer.
Loc. *Hill Station* . . . . . 2,323 ft. G. T. S.

No. 158. GÁRRIA, 23° 30′; 78° 39′, in Málva, S. of Ságer.
Loc. *Mean height of the village* . . . . . 2,020 ft. Frankl

No. 159. BHÍLSA, 23° 30′; 77° 45′, in Málva, 190 miles S. of Gválior.
Loc. *Level of the railway* . . . . . 1,406 ft. Ham.

No. 160. SINGRÁMPUR, 23° 30′; 79° 47′, in Málva, between Chíbera and Kattíngi.
Loc. *Dák bángalo* . . . . . 1,414 ft. Schl., Ad

6, Adie. 1855, Dec. 22. *B* = Aligárh; *C* = Bitteli.
6h 50m A.M. *A*. 28·772; 44·6; 72. *B*. 29·481; 51·8; 83. + 21 = 1,433 ft. *C*. 28·965; 40·2 = 1,391 ft.

No. 161. MAHÍDPUR, 23° 30′; 75° 38′, in Málva, 23 miles N. of Újén.
Loc. *Mean height of the village* . . . . . ab. 1,600 ft. Scott.

No. 162. LÓRA, 23° 29′·7; 80° 9′·0 ⏚, in Bahár, 6 miles S. of Bandugárh.
Loc. *Hill Station* . . . . . 1,993 ft. G. T. S.

No. 163. KÁRHUA, 23° 29′; 81° 20′, in Málva, 15 miles N. of Sohágpur.

Loc. *Mean height of the village* . . . . . 1,571 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 6, 5h P.M. *A.* 209°·67 Fahr.; 69·8; 22. Aligárh 29 414; 71·2; 55. — 17 ft.

No. 164. KALUMÁR, *H. S.*, 23° 27′·9; 79° 43′·4 ✝, in Málva, near the Biárma nálah, S. of Dámo . . . . . 2,544 ft. G. T. S.

No. 165. KHACHRÓD, 23° 26′; 75° 20′, in Málva, S.E. of Jáura.

Loc. *Mean height of the village* . . . . . 1,636 ft. Wils.

No. 166. BÁINSA, or BÍNSA, 23° 25′; 79° 18′, in Málva, N. of the Nărbáda.

Loc. *Mean height of the village* . . . . . 1,320 ft. Frankl.

No. 167. MAJGÓVA, 23° 24′; 80° 13′, in Málva, W. of Bandugárh fort.

Loc. *Undefined* . . . . . 1,476 ft. Frankl

No. 168. KATTÍNGI, 23° 24′; 79° 49′, in Málva, on the foot of the Bharér hills, 20 miles N. of Jáblpur.

Loc. 1) *Foot of the Bharér hills* . . . . . 1,342 ft. Schl., Ad.

6, Adie. 1855, Dec. 22. *B* = Aligárh; *C* = Level of the Nărbáda at Bermhán.
6h 15m P.M. *A.* 28 792; 63 1. *B.* 29 426; 64·9. − 5 = 1,357 ft. *C.* 29·000; 62 1 = 1,326 ft.

Loc. 2) *Top of the hill at Kattíngi* . . . . . 1,873 ft. Schl., Ad.

6, Adie. 1855, Dec. 22, 5h 15m P.M. *A.* 28·245; 65 1 Kattingi 28 792; 67 6. − 11 ft.

No. 169. KUSKÁRI, 23° 24′; 79° 10′, in Málva, 10 miles N. of the Nărbáda.

Loc. *Mean height of the village* . . . . . 1,510 ft. Frankl.

No. 170. DEÓRI, 23° 24′; 79° 0′, in Málva, S. of Réli . 1,631 ft. Frankl.

No. 171. TÁNDA, 23° 24′; 78° 41′, in Málva, S.W. of Réli.

Loc. *Undefined* . . . . . 1,774 ft. Frankl.

No. 172. PÁURI, 23° 23′; 80° 8′, in Málva, N.E. of Jáblpur.

Loc. *Undefined* . . . . . 1,349 ft. Frankl.

No. 173. GÁNO, 23° 23′; 78° 49′, in Málva, E. of Tánda 1,650 ft. Frankl.

No. 174. MARÁJPUR, 23° 22′; 79° 0′, in Málva, 18 miles N. of the Narbáda.

Loc. *Mean height of the village* . . . . . 1,507 ft. Schl, Rob.

4, Adie. 1855, Dec. 21, 7h 15m A.M. *A.* 28·733; 51·6. Aligárh 29·520; 52 7. + 15 ft.

No. 175. BALRÁMPUR GHÁT, 23° 22′; 79° 31′, in Málva, 11 miles N.E. of Bhopál.

Loc. *Level of the railway* . . . . . 1,640 ft. Ham.

No. 176. BÁMINI, 23° 20′; 79° 1′, in Málva, 2 miles S. of Marájpur.

Loc. *Mean height of the village* . . . . . 1,293 ft. Schl., Rob

4, Adie. 1855, Dec. 21. *B* = Ágra; *C* = Aligárh.

5h 15m P.M. *A.* 28·890; 69·6. *B.* 29·548; 71 6. — 13 = 1,285 ft. *C.* 29·469; 69 1. 12 = 1,301 ft

No. 177. SÁMNAPUR, 23° 20′; 79° 24′, in Málva, N. of the Narbáda.

Loc. *Mean height of the village* . . . . . 1,472 ft. Frankl

No. 178. SOHÁGPUR, 23° 19′; 81° 21′, in Málva, a thesil, 90 miles E. of Jábalpur.

Loc. 1) *Entrance to the káchérri* . . . . . 1,605 ft. Schl, Rob

7, Thermo-barom. 1856, Feb. 4. *B* = Ágra; *C* = Aligárh.

9h A.M.	*A.* 209° 70 Fahr.; 62 2; 95.	*B.* 29 567; 62·2; 44 0 = 1,609.	*C.* 29·419, 58·3, 75 0 = 1,586
6h P.M.	„ 209° 52 „	61·8; 87.	„ 29·378; 67 5; 53 9 = 1,621

Loc. 2) *Level of the Sōn at the Diapíper ghat during the cool season* . . . . . 1,361 ft. Schl, Rob

= 244 ft. below the entrance to the káchérri at Sohágpur; by aneroid.

Loc. 3) *Top of the bank of the Sōn at the Diapíper ghat* . . 1,421 ft. Schl, Rob

= 60 ft. above the level of the Son; by aneroid.

No. 179. PANNAGÁRH, 23° 19′; 80° 0′, in Málva, N. of Jábalpur.

Loc. *Undefined* . . . . . 1,403 ft. Frankl

No. 180. SEHÁJPUR, 23° 18′; 78° 53′, in Málva, E.S.E. of Tánda.

Loc. *Undefined* . . . . . 1,441 ft. Frankl.

No. 181. DHÓBI, 23° 17′; 79° 0′, in Málva, S.W. of Réli 1,630 ft. Frankl.

No. 182. PATHERÍA, 23° 16′; 79° 33′, in Málva, near the Nărbáda.

Loc. *Mean height of the village* . . . . . 1,321 ft. Frankl.

No. 183. BHOPÁL, 23° 16′; 77° 20′, in Málva, 325 miles S.W. of Allahabád.

Loc. *Level of the railway* . . . . . 1,690 ft. Ham.

No. 184. LÁLPUR, 23° 15′; 81° 29′, in Málva, 9 miles S.E. of Sohágpur.

Loc. *Mean height of the village* . . . . . 1,643 ft. Schl., Rob.

7, Thermo-barom. 1856, Feb. 2, 5h P.M. *A*. 209·49 Fahr.; 72·0; 40. Aligárh 29·386; 67·1; 54. — 18 ft.

No. 185. SEHÓR, 23° 12′, 77° 1′, in Málva, 19 miles W. of Bhopál.

Loc. *Level of the railway* . . . . . 1,620 ft. Ham.

No. 186. SHÁHPUR, 23° 11′; 80° 41′, in Málva, E. of Jáblpur.

Loc. *Undefined* . . . . . 1,687 ft. Scott.

No. 187. NATVÁRA, 23° 11′; 79° 39′, in Málva, N.W. of Jáblpur.

Loc. *Undefined* . . . . . 1,352 ft. Frankl.

No. 188. TENDUKÁIRA, 23° 11′; 78° 55′, in Málva, N. of the Narbáda.

Loc. *Mean height of the village* . . . . . 1,264 ft. Frankl.

No. 189. UJÉN, 23° 11′; 75° 50′, in Málva, on the right bank of the Sípra.

Loc. *Undefined* . . . . . 1,698 ft. Scott.

No. 190. JÁBLPUR, 23° 9′·7; 79° 56′·3 ♃, in Málva, a large station, 1½ mile from the right bank of the Narbáda.

Loc. 1) *Dak bángalo* . . . . . 1,386 ft. Schl., Ad. and Rob.

6, and *A*, Adie. 1855, and 1856. *B* = Ágra; *C* = Aligárh.

h m			
Dec. 26, 8 45 A.M.	*A*. 28·800; 57·0; 57.	*B*. 29 567; 62·6; 52. + 1 = 1,391	*C*. 29 453; 56·8; 68. + 0 = 1,372
„ 31, 8 „	„ 28·805; 46·0; 86.	„ 29 599; 57·0; 72. + 9 = 1,408	„ 29·473; 53 1; 86. + 7 = 1,380
„ 31, 9 „	„ 28·827; 54·3; 60.	„ 29·615; 61·0; 52. — 2 = 1,402	„ 29 489; 55·8; 68. — 2 = 1,374
Jan. 2, 8 „	„ 28 835, 48 9; 73.		„ 29 481; 55·0; 60. + 9 = 1,366
„ 2, 10 „	„ 28 831, 63 7; 57.	„ 29 615; 64·0; 36. — 11 = 1,399	„ 29·497; 60·1; 54. — 9 = 1,380

Loc. 2) *Mean height of the cantonment* . . . . . 1,396 ft. Frankl.

Loc. 3) *Residency* . . . . . 1,426 ft. Frankl.

„ 4) *Level of the Nărbáda* . . . . . 1,296 „ Schl., Ad.

6, Adie. 1855, Dec. 27. *B* = Ágra; *C* = Aligárh; *D* = Belkhéri.

8h 10m A.M. *A.* 28·851; 52·5. — 56. *B.* 29·536; 64 9; 54 + 6 = 1,315 ft. *C.* 29·430; 56 8; 75 + 5 = 1,302 ft. *D.* 28·800; 50·4; 65 = 1,272 ft.

No. 191. Mirgánj, 23° 9′; 79° 50′, in Málva, 2 miles S. of the Nărbáda.

Loc. 1) *Mean height of the village* . . . . . 1,418 ft. Schl., Rob

4, Adie. 1855, Dec. 29. *B* = Ágra; *C* = Aligárh.

4h P.M. *A.* 28·674; 73·0. *B.* 29·473; 66·2. — 25 = 1,414 ft. *C.* 29·382; 65 5. + 23 = 1,421 ft.

Loc. 2) *Level of the Nărbáda at the Béra ghat* . . . . . 1,255 ft. Schl., Rob

4, Adie. 1855, *B* = Ágra; *C* = Aligárh.

5h 10m P.M. *A.* 28·859; 73·1.	*B.* 29·481; 65·8. — 13 = 1,251 ft.	*C.* 29 390; 62 8. — 11	1,256 ft.
6h 45m „ „ 28·878; 60·1.		„ 29 406; 59 0. + 4	1,258 „

No. 192. Teór, 23° 9′; 79° 50′, in Málva, W. of Jábalpur.

Loc. *Mean height of the village* . . . . . 1,324 ft. Frankl

No. 193. Jhánsi Ghat, 23° 9′; 79° 36′, in Málva, on the right bank of the Narbáda.

Loc. *Mean height of the village* . . . . . 1,228 ft. Schl., Rob.

4, Adie. 1855, Dec. 28. *B* = Ágra; *C* = Aligárh.

10h A.M. *A.* 28·922; 69 3. *B.* 29 520; 64·9. — 11 = 1,223 ft. *C.* 29 434; 60 1. — 11 1,233 ft

No. 194. Ánugpur, 23° 5′; 81° 43′, in Málva, 4 miles S. of the Son.

Loc. *Mean height of the village* . . . . . 1,796 ft. Schl, Rob

7, Thermo-barom. 1856, Feb. 1, 5h 30m P.M. *A.* 209·19 Fahr.; 67 3; 42. Aligárh 29·371; 65 5. 61 16 ft.

No. 195. Emelía, 23° 4′; 79° 25′, in Málva, left bank of the Úmer nálah. W.S.W. of Jhánsi Ghāt.

Loc. *Mean height of the village* . . . . . 1,285 ft. Schl., Rob

4, Adie. 1855, Dec. 27. *B* = Ágra; *C* = Aligárh.

12h Noon. *A.* 28·839; 73·0; 45.	*B.* 29 497; 71 4. — 10 = 1,262 ft.	*C.* 29 118; 65 3. + 36	1,279 ft.
3h P.M. „ 28·760; 77·7; 37.	„ 29 422; 75·2. — 28 = 1,286 „	„ 29 359; 70·7 — 26 = 1,315 „	

No. 196. Bítteli, 23° 3′; 79° 0′, in Málva, 2 miles N. of the thána Bermhán.

Loc. 1) *Foot of an isolated hill* . . . . . 1,241 ft. Schl., Rob.

4, Adie. 1855, Dec 22, 7h A.M. *A.* 28·965; 40 6; 82. Aligárh 29 481; 52 2; 70. + 13 ft.

Loc. 2) *Top of the isolated hill* . . . . . 1,570 ft. Schl., Rob.

= 329 ft. above the foot of the hill; by aneroid.

No. 197. Nólie, 23° 3′; 75° 28′, in Málva, 46 miles N.W. of Mháu.

Loc. *Mean height of the village* . . . . . 1,698 ft. Wils.

No. 198. Bermhán, 23° 1′; 79° 0′, in Málva, a thána on the right bank of the Nárbáda.

Loc. 1) *Mean height of the village* . . . . . 1,216 ft. Schl., Rob.

4, Adie. 1855, Dec. 23. *B* = Ágra; *C* = Aligárh.

10h A.M. *A.* 28·977, 66 6 *B.* 29 571; 63 9, 56. — 13 = 1,216 ft. *C.* 29·473; 61·5. — 12 = 1,215 ft.

Loc. 2) *Level of the Nárbáda during the dry season* . . . . . 1,124 ft. Schl., Rob.

92 ft. below the mean height of Bermhán; by aneroid.

„ 3) *Level of the Nárbáda during the rains* . . . . . 1,189 ft. Schl., Rob.

= 65 ft. above the level during the dry season; by aneroid.

No. 199. Chóki, 23° 0′; 80° 1′, in Málva, on the left bank of the Híngena river, S.E. of Jábalpur.

Loc. *Mean height of the plateau* . . . . . 1,609 ft. Schl., Rob.

4, Adie. 1856, Jan. 6, 5h 45m P.M. *A.* 28·501; 62 6; 50. Aligárh 29·398; 67 1; 60. — 14 ft.

No. 200. Ásuta, 23° 0′; 76° 41′, in Málva, 24 miles S.W. of Bhopál.

Loc. *Level of the railway* . . . . . 1,620 ft. Ham.

No. 201. Nársínghpur, 22° 57′; 79° 8′, in Málva, a small station, 15 miles S. of the Narbáda.

Loc. *Dak bángalo* . . . . . 1,305 ft. Schl., Rob.

4, Adie. 1855, Dec. 26. *B* = Ágra; *C* = Aligárh.

1h P.M. *A.* 28·796; 76·6; 34. *B.* 29 465; 73·0. — 22 = 1,296 ft. *C.* 29 386; 72·0. — 19 = 1,314 ft.

No. 202. Múnda, 22° 57′; 81° 55′, in Málva, 10 miles N.N.W. of Péndera.

Loc. *Mean height of the village* . . . . . 2,008 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 31. *B* = Ágra; *C* = Aligárh.

1h 30m P.M. *A.* 208 66 Fahr., 67 8. *B.* 29 386; 64·4; 75. — 41 = 1,992 ft. *C.* 29·323; 64 6; 83. — 43 = 2,023 ft.

No. 203. SÚKRI, 22° 56′; 79° 49′, in Málva, 15 miles S. of the Nărbáda.

Loc. 1) *Mean height of the village* . . . . . 1,491 ft. Schl., Ad.

6, Adie. 1855, Dec. 27, 5h 40m P.M. *A.* 28 575; 62·1; 52. Aligárh 29·351; 68·0; 59. — 15 ft

Loc. 2) *Top of the Sílva pass, S. of Sákri* . . . . . 1,928 ft. Schl., Ad.

6, Adie. 1855, Dec. 28, 6h 30m A.M. *A.* 28 174; 55 4, 64. Aligárh 29 375; 54 7 74. | 26 ft.

No. 204. BELKHÉRI, 22° 56′; 79° 19′, in Málva, a small village on the right bank of the Sher nálah, an affluent of the Nărbáda.

Loc. *Mean height of the village* . . . . . 1,348 ft. Schl., Rob

4, Adie. 1855, Dec. 27, 7h 15m A.M. *A.* 28·796; 47·3; 71. Aligárh 29 118; 54 1. 73. | 14 ft

No. 205. GOLÁDPUR, 22° 52′; 75° 34′, in Málva, near the left bank of the Chámbal, S.E. of Nólie.

Loc. *Level of the Chámbál* . . . . . 1,554 ft. Wls

No. 206. TÁPPA BÁRI GHÁT, 22° 50′; 76° 22′, in Málva, 23 miles N.E. of Ragugárh.

Loc. 1) *Level of the railway* . . . . . 1,788 ft. Ham.

„ 2) *Level of the railway at Táppa ghat* . . . . . 1,865 „ Ham.

No. 207. TAVÁI, 22° 49′; 80° 15′, in Málva, between Chóki and Naraingánj.

Loc. *Mean height of the plateau* . . . . . 1,866 ft. Schl., Rob.

4, Adie. 1856, Jan. 7, 7h 30m A.M. *A.* 28·335; 48·9. Aligárh 29 497; 54 0. | 16 ft.

No. 208. NARAINGÁNJ, 22° 49′; 80° 18′, in Málva, in a plateau, 3 miles E. of the Móthi.

Loc. 1) *Mean height of the plateau* . . . . . 1,521 ft. Schl., Rob.

4, Adie. 1856, Jan. 7, 2h P.M. *A.* 28 678; 75 2; 39. Ágra 29 579; 69·6; 25. - 36 1,506
„ „ „ 7, 4h „ „ 28·630; 71·1; 23. „ 29 552; 70 2; 25. — 27 1,536

Loc. 2) *Gúmba ghat, a pass S.S.E. of Naraingánj* . . . . . 1,553 ft. Schl., Rob

— 32 ft. above the mean height of the plateau at Naraingánj; by aneroid.

No. 209. GÓLA, 22° 49′; 76° 20′, in Málva, 15 miles N.E. of Ragugárh.

Loc. *Level of the railway* . . . . . 1,650 ft. Ham.

No. 210. BÓNDER, 22° 47′; 81° 20′, in Málva, between Sómnapur and Gorákhpur

Loc. *Mean height of the village* . . . . . 2,559 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 17, 4h 30m P.M. *A.* 207° 85 Fahr.; 74·5; 12. Aligárh 29 386; 70·2, 52. — 56 ft.

No. 211. Hushangabád, 22° 45′; 77° 42′, in Málva, on the left bank of the Nărbáda, 144 miles E. of Máhu (Mhow).

Loc. *Mean height of the station* . . . . . 1,050 ft. P. C.

No. 212. Chitvára, 22° 45′; 75° 40′, in Málva, E. of the Chámbăl.

Loc *Mean height of the village* . . . . . 1,605 ft. Wils.

No. 213. Ramgárh, 22° 44′; 80° 58′, in Málva, on a small, isolated hill, at the right bank of the Kermér.

Loc. 1) *Entrance to the thána* . . . . . 2,438 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 14, 8h 30m A.M. *A.* 208° 26 Fahr; 55·4; 61. Ágra 29·587; 61·4; 38. + 9 ft.

Loc. 2) *Level of the Kermér river at Ramgárh* . . . . . 2,303 ft. Schl., Rob.

135 ft. below the entrance of the thána at Ramgárh; by aneroid.

No. 214. Gorákhpur, 22° 44′; 81° 27′, in Málva, 2 miles W. of the left bank of the Sióni; on the highest part of a plateau.

Loc. 1) *Highest house of the village* . . . . . 2,573 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 18, 5h 30m P.M. *A.* 207"·85 Fahr.; 64·0; 26. Aligárh 29·414; 67·8; 64. — 47 ft.

Loc. 2) *Mean height of the plateau* . . . . . 2,515 ft. Schl., Rob.

56 ft. below the mean height of the village; by aneroid.

No. 215. Indúr (Indore), 22° 42; 75° 52′, in Málva, 142 miles S. of Nímach.

Loc. 1) *Undefined* . . . . . 1,998 ft. Scott.

„ 2) *Level of the railway* . . . . . 1,853 „ Ham.

No. 216. Rajmirgárh, 22° 41′; 81° 47′, in Málva, the highest peak E. of Amarkanták.

Loc. *Top of the peak* . . . . . 3,753 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 27. *B* = Ágra; *C* = Aligárh.

2h P.M. *A.* 205"·63 Fahr.; 70 5; 55. *B.* 29 422; 69·3; 50. — 95 = 3,744 ft. *C.* 29·351; 66·9; 67. — 92 = 3,762 ft.

No. 217. △ Johílla Sir, 22° 41′; 81° 47′, in Málva, 4 miles N. of Amarkántak.

Loc. *Source of the Johílla* . . . . . 3,435 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 26. *B* = Aligárh; *C* = Ágra.

1856, Jan. 26, 8h 30m A.M. *A.* 206"·41 Fahr.; 71·0; 72. *B.* 29·406; 59·0; 83 + 13 = 3,445.

„ „ 26, 10h „ „ 206"·43 „ 74·0; 67. „ 29·430; 62·1; 82 — 27 = 3,435.

„ „ 26, 10h „ „ 206"·43 „ 74 0; 67. *C.* 29 508; 65·1; 70 — 28 = 3,426.

No. 218. SÁLVA, 22° 40′; 80° 48′, in Málva, 14 miles S.W. of Ramgárh.

Loc. *Mean height of the plateau* . . . . . 2,048 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 12. *B* = Ágra; *C* = Aligárh.

2h 30m P.M. *A*. 208°·86 Fahr.; 77·4; 29. *B*. 29·524; 75·9; 37. — 43 = 2,043 ft. *C*. 29·440; 73·6; 58. — 40 = 2,052 ft.

No. 219. KARÉNCHIA, 22° 40′; 81° 40′, in Málva, on a plateau, 9 miles N.W. of Amarkántak.

Loc. *Mean height of the plateau* . . . . . 2,658 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 19, 5h 45m P.M. *A*. 207°·72 Fahr.; 62·8; 36. Aligárh 29 406; 70·5; 65. — 33 ft.

No. 220. LÄKHNADÁUN, 22° 39′; 79° 39′, in Málva, a thána, S. of Jáblpur.

Loc. *Mean height of the village* . . . . . 2,072 ft. Schl., Ad.

6, Adie. 1855, Dec. 28, 7h 5m P.M. *A*. 28·028; 64·8. Aligárh 29 394; 64·2. — 17 ft.

No. 221. RAMNÁGGER, 22° 39′; 80° 32′, in Málva, on the left bank of the Närbáda, one day's march E. of Mándla.

Loc. 1) *Entrance to the fort* . . . . . 1,588 ft. Schl., Rob.

4, Adie. 1856, Jan. 10. *B* = Ágra; *C* = Aligárh.

9h A.M. *A*. 28.729; 51·8. *B*. 29·717; 62·6 = 1,594 ft. *C*. 29 607; 58·1; 71 = 1,581 ft.

Loc. 2) *Level of the Närbáda at Ramnágger* . . . . . 1,514 ft. Schl., Rob.
= 74 ft. below the entrance to the fort at Ramnágger; by aneroid.

No. 222. PAKARÍA, 22° 39′; 81° 50′, in Málva, 6 miles E.N.E. of Amarkántak.

Loc. *Mean height of the village* . . . . . 2,218 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 27. *B* = Ágra; *C* = Aligárh.

11h A.M. *A*. 208°·48 Fahr.; 74·8; 48. *B*. 29·477; 63·7; 68. — 32 = 2,208 ft. *C*. 29·402; 61·0; 77. — 30 = 2,228 ft.

No. 223. AMARKÁNTAK, 22° 38′; 81° 46′, in Málva, a place celebrated in Hindu mythology, about 160 miles E. of Jáblpur.

Loc. 1) *Mean height of the plateau Vishnupúri* . . . . . 3,590 ft. Schl., Rob.

7, Thermo-barom. 1856, Jan. 22. *B* = Ágra; *C* = Aligárh.

h							
9 A.M.	*A*. 206°·29 Fahr.;	66·4; 52	*B*. 29·611;	63·0; 62.	+ 0 = 3,608	*C*. 29·473;	63·0; 76. + 0 = 3,569.
10 „	„ 206°·27 „	68·2; 60	„ 29·595;	65·5; 60.	— 29 = 3,583	„ 29·489;	64·9; 74. — 28 = 3,576.
7 P.M.	„ 206°·12 „	75·6; 30	„ 29·473;	75·0; 44.	— 30 = 3,603	„ 29·375;	73·6; 50. — 29 = 3,598.

Loc. 2) *Tank Pächh Kund, source of the Närbáda* . . . . . 3,504 ft. Schl., Rob.

„ *ditto* . . . . . 3,288 „ Wroughton.
= 86 ft. below the mean height of the plateau Vishnupúri; by aneroid.

„ 3) *Top of the hills skirting the Vishnupúri plateau to the north* 3,700 ft. Schl., Rob.
= 110 ft. above the Vishnupúri plateau; by aneroid.

No. 224. △ Sŏn Bádder, 22° 38′; 81° 51′, in Málva, a tank, from which the Sŏn takes its rise, 7 miles S.E. of Péndera.

Loc. *Level of the tank, or source of the Sŏn* . . . . . 2,120 ft. Schl., Rob.

7. Thermo-barom. 1856, Jan. 29.

h m
7 45 A.M. *A.* 208°·66 Fahr.; 64·0; 76. Aligárh 29·375; 56·5; 80. + 30 = 2,135 ft.
9 10 „ „ 208°·70 „ 68·7; 45. „ 29·390; 58·5; 78. + 0 = 2,105 „

No. 225. Pára, 22° 38′; 74° 42′, in Gujrát, N. of the Nărbáda, 369 miles N.E. of Bombay.

Loc. *Level of the railway* . . . . . 1,325 ft. Ham.

No. 226. Tírla Ghát, 22° 38′; 74° 47′, in Gujrát, 18 miles E. of Pára.

Loc. *Level of the railway* . . . . . 1,850 ft. Ham.

No. 227. Mándla, 22° 36′; 80° 25′, in Málva, a thesil on the right bank of the Nărbáda.

Loc. 1) *Entrance to the kächérri* . . . . . 1,551 ft. Schl., Rob.

h m
4, Adie, 1856, Jan. 8, 7 0 P.M *A.* 28 638; 54 3; 64. Aligárh 29·477; 62·1; 53. + 0 = 1,552 ft.
„ „ 8 45 „ „ 28·674; 52·2; 62. „ 29·504; 58·8; 52. + 12 = 1,550 „

Loc. 2) *Level of the Nărbáda at Mándla, during the dry season* 1,401 ft. Schl., Rob.
= 150 ft. below the kachérri at Mándla; by aneroid.

Loc. 3) *Level of the Nărbáda at Mándla, during the rains* . 1,425 ft. Schl., Rob.
= 24 ft. above the level during the dry season; by aneroid.

No. 228. Mándla Pass, 22° 35′; 80° 22′, in Málva, between Lálipur and Babéa.

Loc. *Top of the pass* . . . . . 1,626 ft. Schl., Rob.

4, Adie. 1856, Jan. 8. *B* = Aligárh; *C* = Ágra.

8h 45m A.M. *A.* 28 599; 50·7. *B.* 29·516; 51·7. + 2 = 1,619 ft. *C.* 29·627; 59·9. + 2 = 1,633 ft.

No. 229. Dhār, 22° 35′; 75° 21′, in Málva, 33 miles W. of Máhu (Mhow).

Loc. *Level of the railway* . . . . . 1,850 ft. Ham.

No. 230. Máhu (Mhow), 22° 33′; 75° 49′, in Málva, 13 miles S.E. of Indúr.

Loc. *Mean height of the cantonment* . . . . . 1,862 ft. Wils.

No. 231. Joneámi Ghāt, 22° 31′; 74° 30′, in Gujrát, between Rájpur Ali and Pára.

Loc. *Level of the railway* . . . . . 1,385 ft. Ham.

No. 232. CHÁPRA, 22° 22′; 79° 36′, in Málva, on the left bank of the Vaingánga, S. of Lăkhnadáun.

Loc. *Mean height of the village* . . . . . 1,885 ft. Schl., Ad.

6, Adie. 1855, Dec. 29. *B* = Aligárh; *C* = Mirgánj.

6h 45m P.M. *A.* 28·241; 64·6; 38. *B.* 29·406; 59 0; 54. — 14 = 1,867 ft. *C.* 28 733; 62·0. 40 = 1,903 ft.

No. 233. JĀM GHĀT, 22° 20′; 75° 51′, in the Dékhan, S. of Máhu (Mhow).

Loc. *Top of the ghát* . . . . . 2,328 ft. Wils.

No. 234. RAGUGÁRH, 22° 21′; 76° 11′, in Málva, 21 miles N.E. of Indúr.

Loc. *Level of the railway* . . . . . 1,960 ft. Ham.

No. 235. RÁJPUR ÁLI, 22° 20′; 74° 21′, in Málva, 115 miles N.E. of Bharúch (Broach).

Loc. *Level of the railway* . . . . . 994 ft. Ham.

No. 236. MANDLASÍR, 22° 11′; 75° 46′, in Málva, on the right bank of the Narbáda.

Loc. *Level of the Nărbáda* . . . . . ab. 700 ft. Wils.

No. 237. DUBHÁI, 22° 10′; 73° 25′, in Gujrát, 15 miles S.E. of Baróda.

Loc. *Level of the railway* . . . . . 145 ft. Ham.

No. 238. SEÚNI, or SEÓNI, 22° 6′; 79° 33′, in Berár, near the left bank of the Vaingánga, 82 miles S.S.W. of Jáblpur.

Loc. *Mean height of the cantonment* . . . . . 2,133 ft. Schl., Ad.

6, Adie. 1855, Dec. 30. *B* = Ágra; *C* = Aligárh.

h m			
12 5 P.M.	*A.* 27·985; 70 6; 14	*B.* 29·528; 64·4; 34. — 51 = 2,129	*C.* 29 449; 60·1; 41. — 47 = 2,145
4 0 „	„ 27·953; 74·6; 14	„ 29·481; 69·6; 26. — 51 = 2,130	„ 29·390; 68·0; 37. — 47 = 2,138
6 25 „	„ 27·981; 63·4; 21		„ 29·418; 60 8; 51. — 32 = 2,125

No. 239. BÁDAM PAHÁR, 22° 4′·2; 86° 6′·5 ♁, in Oríssa, 70 miles S.W. of Mídnapur.

Loc. *Hill Station* . . . . . 2,706 ft. G. T. S.

No. 240. KUSUMBÁNI, 21° 57′·5; 86° 25′·0 ♁, in Oríssa, in the Bamín hills, N.W. of Balasúr.

Loc. *Hill Station* . . . . . 3,285 ft. G. T. S.

No. 241. AMJHÓRI, 21° 51′·5; 86° 18′·4♆, in Oríssa, in the Bamín hills, W. of Balasúr.

Loc. *Hill Station* . . . . . 3,515 ft. G. T. S.

No. 242. BÁITUL, 21° 51′·2; 77° 54′·8♆, in Berár, 150 miles S.E. of Ságer.

Loc. *Mean height of the station* . . . . . ab. 2,000 ft. P. C.

No. 243. MURÁRI, 21° 48′·8; 86° 29′·9♆, in Oríssa, in the Bamín hills, S.W. of Midnapur.

Loc. *Hill Station* . . . . . 3,107 ft. G. T. S.

No. 244. KURÁI GHAT, 21° 50′; 79° 30′, in Berár, S. of Seúni, or Seóni.

Loc. *Dak Cháuki* . . . . . 1,963 ft.

6, Adie. 1855, Dec. 31. *B* = Ágra; *C* = Aligárh; *D* = Jáblpur.

8h 30m A.M. *A*. 28·237; 61·2; 42. *B*. 29·607; 59·0; 39. + 3 − 1,982 ft. *C*. 29·481; 54·5; 53. + 3 = 1,950 ft.
D. 28·818; 50·1; 70. + 10 = 1,958 ft.

No. 245. KURÁI, 21° 48′; 79° 30′, in Berár, S. of Seúni, or Seóni.

Loc. 1) *Dak bángalo* . . . . . 1,482 ft. Schl., Ad.

6, Adie. 1855, Dec. 31. *B* = Ágra; C = Aligárh.

h m			
1 30 P.M.	*A*. 28 678; 77 1; 10	*B*. 29·556; 68·9; 26. — 43 = 1,478 ft.	*C*. 29·453; 65·3; 61. — 37 = 1,475 ft.
6 30 „	„ 28 658; 56·1; 69		„ 29·438; 64·8; 69. — 6 = 1,493 „

No. 246. BÚSA, 21° 46′; 78°·53′, in Berár, S. of Nágpur, on an affluent of the Vánna.

Loc. *Undefined* . . . . . 689 ft. Cull.

No. 247. MULTÁI, 21° 46′; 78° 18′, in Berár, near the source of the Tápti.

Loc. *Source of the Tápti* . . . . . 2,397 ft. Cull.

No. 248. GIRÓRLI, 21° 44′; 78°·22′, in Berár, near the source of the Várda.

Loc. *Level of the Várda, near Girórli* . . . . . 2,181 ft. Cull.

No. 249. BHARÚCH (BROACH), 21° 42′; 73° 1′, in Khandésh, on the right bank of the Nárbáda, near its mouth.

Loc. *Level of the railway* . . . . . 143 ft. Ham.

No. 250. KAUVÁSSA, 21° 41′; 79° 26′, in Berár, N. of the Bovantári nálah.

Loc. *Mean height of the plain* . . . . . 1,243 ft. Schl., Ad.

6, Adie. 1856, Jan. 1, 12h 30m P.M. *A*. 28·768; 78 0. Madras 30·043; 81·7. — 44 ft.

No. 251. KIMÍRA, *H. S.*, 21° 39′·6; 86° 37′·8, in Orissa, on the eastern slopes of the Bamín hills . . . . . 530 ft.. G.T.S.

No. 252. TIGÁŨ, 21° 39′; 78° 20′, in Berár, E. of the upper course of the Várda.

Loc. *Mean height of the village* . . . . . 1,629 ft. Cull.

No. 253. SÍNDVA, 21° 39′; 75° 20′, in Málva, S. of the Nărbáda.

Loc. *Mean height of the village* . . . . . 1,314 ft. Wils.

No. 254. MEGHASÍNI, *H. S.*, 21° 37′·9; 86° 20′·1, in Orissa, in the Bamín hills, S.W. of Mídnapur . . . . . 3,779 ft. G. T. S.

No. 255. DEOLAPÁR, 21° 36′; 79° 23′, in Berár, N. of the Tóndla nádi.

Loc. *Dak bángalo* . . . . . 1,255 ft. Schl., Ad.

6, Adie. 1856, Jan. 1, 7h 35m P.M. *A.* 28·776; 64·8. Madras 30·050; 75.7. — 6 ft.

No. 256. NILGÁRH, 21° 28′·4; 86° 45′·1, in Orissa, 2 miles W. of Balasúr.

Loc. *Hill Station* . . . . . 1,733 ft. G. T. S.

No. 257. BHILAVÁRA, 21° 26′; 79° 18′, in Berár, N.N.E. of Nágpur.

Loc. *Mean height of the plain* . . . . . 1,088 ft. Schl., Ad.

6, Adie. 1856, Jan. 2, 4h P.M. *A.* 28·902; 78·0. Madras 30·011; 82 1. — 34 ft.

No. 258. NÁNDA, 21° 26′; 78° 38′, in Berár, N.W. of Nágpur.

Loc. *Undefined* . . . . . 1,276 ft. Cull.

No. 259. GAVILGÁRH, 21° 22′; 77° 21′, in Berár, 15 miles N.W. of Élichpur.

Loc. *Mean height of the village* . . . . . 1,043 ft. Scott.

No. 260. BOLPÁL, *H. S.*, 21° 22′·0; 86° 27′·0, in Orissa, on the southern slopes of the Bamín hills . . . . . 1,605 ft. G. T. S.

No. 261. KÁMPTI, 21° 16′; 79° 11′, in Berár, a large station on the right bank of the Kanhán.

Loc. *Open place near the church* . . . . . 996 ft. Schl., Ad.

6, Adie. 1856, Jan. 4, 6h A.M. *A.* 29·166; 60·1; 51. Aligárh 29·418; 48·9; 75. + 9 ft.

No. 262. NÁGPUR, 21° 10′; 79° 7′, in Berár, chief town of the province, S. of Kámpti.

Loc. *Level of the Nag nádi* . . . . . 935 ft. Cull.

„ *ditto* . . . . . 939 „ Scott.

No. 263. SITABÁLDI, 21° 10′; 79° 6′, in Berár, a large station adjoining Nágpur.

Loc. *Mean height of the plain* . . . . . 1,169 ft. Schl., Ad.

6, Adie. 1856. *B* = Ágra; *C*. Aligárh. Local corr. — 25 ft.

Jan. 6, 4 40 P.M.	*A*. 28·878; 86·6; 25.		*C*. 29·382; 70·0; 51. − 12 = 1,214.
„ 7, 11 25 A.M.	„ 29·044; 78·9; 35.	*B*. 29·638; 65·8; 31. — 32 = 1,180.	„ 29·520; 62·6; 48. — 25 = 1,164.
„ 7, 9 10 P.M.	„ 29 044; 69·6; 35.		„ 29·481; 52·7; 65. + 12 = 1,155.
„ 8, 3 15 „	„ 28 981; 83·4; 22.	„ 29 536; 68 0; 20. — 20 = 1,154.	„ 29·449; 66·0; 42. — 17 = 1,169.
„ 8, 3 15 „	„ 28·981; 83·4; 22.	Mándla 28·607; 75·0; 24 = 1,149.	
„ 8, 8 35 „	„ 29 056; 71·4; 32.		„ 29·501; 59·4; 59. + 13 = 1,166.

No. 264. KARÍNJA, 21° 10′; 78° 26′, in Berár, W. of Nágpur.

Loc. *Mean height of the village* . . . . . 1,416 ft. Cull.

No. 265. SÚRAT, 21° 6′; 72° 57′, in Khandésh, a large place on the left bank of the Tápti.

Loc. *Level of the railway* . . . . . 80 ft. Ham.

No. 266. TÁKAL GHÁT, 20° 55′; 78° 57′, in Berár, 20 miles S. of Nágpur, on the right bank of the Vánna nálah.

Loc. *Top of the bank of the nálah* . . . . . 901 ft. Schl., Ad.

6, Adie. 1856, Jan. 9, 6h P.M. *A*. 29·221; 75·0. Madras 30·129; 78·9. — 9 ft.

No. 267. AMRAVÁTI, 20° 55′; 77° 46′, in Berár, on a plain with hills to the east.

Loc. *Mean height of the plain* . . . . . 928 ft. Cull.

No. 268. NACHENGÁŨ, 20° 48′; 78° 22′, in Berár, on the left bank of the Várda, 60 miles S. of Nágpur.

Loc. 1) *Level of the Várda* . . . . . 675 ft. God.

Loc. 2) *Top of the bank of the Várda* . . . . . 715 „ Cull.

No. 269. ÁKOLA, 20° 42′; 77° 1′, in Berár, on an open plain, near the Múrna.

Loc. *Mean height of the plain*. . . . . 808 ft. Cull.

No. 270. JHURGÁŨ, 20° 41′; 74° 45′, in Khandésh, N.E. of Malegáũ.
Loc. *Mean height of the village* . . . . . 1,444 ft. Wils.

No. 271. ASSIRGÁRH, 20° 41′; 73° 18′, in the Kónkan, 10 miles W. of Yévar.
Loc. *Tree in the fort* . . . . . 1,154 ft. Bomb. Cal.

No. 272. MANDGÁŨ, 20° 40′; 78° 53′, in Berár, 8 miles N. of Hingenghát.
Loc. *Mean height of the plain* . . . . . 742 ft. Schl., Ad.
6, Adie. 1856, Jan. 10, 5h 40m P.M. *A.* 29·371; 75·0. Madras 30·117; 79 5. — 10 ft.

No. 273. HINGENGHÁT, 20° 34′; 78° 51′, in Berár, S. of Nágpur.
Loc. 1) *Level of the Godáveri* . . . . . 610 ft. Cull.
„ 2) *Top of the bank of the Godáveri* . . . . . 650 „ Cull.

No. 274. MALEGÁŨ, 20° 33′; 74° 35′, in the Dékhan, on an affluent of the Girna.
Loc. *Mean height of the village* . . . . . 1,587 ft. Wils.

No. 275. BAFLÚN, 20° 32′; 73° 30′, in the Dékhan, 12 miles W. of Sulgána.
Loc. *Top of the hill* . . . . . 2,204 ft. Bomb. Cal.

No. 276. GHONTVÁL, 20° 31′; 73° 21′, in the Kónkan, 12 miles E. of Dhárampur.
Loc. *Tree on the top of the hill* . . . . . 2,235 ft. Bomb. Cal.

No. 277. LÃKENVÁDI, 20° 30′; 76° 39′, in the Dékhan, S.W. of Ákola.
Loc. *Level of the nálah* . . . . . 1,103 ft. Cull.

No. 278. ÍDGAH, 20° 27′; 72° 53′, in the Kónkan, near the sea shore.
Loc. *Tower Station* . . . . . 420 ft. Bomb. Cal.

No. 279. NÁGRI, 20° 25′·4; 78° 52′·8, in Berár, 82 miles S.E. of Nágpur.
Loc. *Mean height of the plain* . . . . . 848 ft. Schl., Ad.
6, Adie. 1856, Jan. 11. *B* = Ágra; *C* = Aligárh.
4h P.M. *A.* 29·371; 81·4; 29. *B.* 29·564; 75·0; 35. — 6 = 840 ft. *C.* 29 481; 73·6; 53. — 3 = 855 ft.

No. 280. IKHÁRA, 20° 25′; 74° 16′, in the Dékhan, 10 miles N. of Chandúr.
Loc. *Hill Fort* . . . . . 4,482 ft. Bomb. Cal.

No. 281. DHÓRUP, 20° 22′; 74° 2′, in the Dékhan, 17 miles W. of Chandúr.
Loc. *Hill Fort* . . . . . 4,745 ft. Bomb. Cal.

No. 282. INDARGÁRH, *H. S.*, 20° 22′, 73° 51′, in Khandésh, near the left bank of the Damán Gánga . . . . . 405 ft. Bomb. Cal.

No. 283. NANDGÁŨ, 20° 20′; 74° 48′, in Khandésh, on an affluent of the Gírna.
Loc. *Undefined* . . . . . 1,567 ft. Wils.

No. 284. CHANDÚR, 20° 19′; 74° 16′, in Khandésh, a large native town, N. of Nássik.
Loc. *Mean height of the town* . . . . . 3,230 ft. Buist.

No. 285. VĂRŎDA, 20° 15′; 79° 0′, in Berár, 2 miles N.E. of the Várda.
Loc. *Dak bángalo* . . . . . 776 ft. Schl., Ad.

6, Adic. 1856, Jan 12. *B* = Ágra; *C* = Aligárh.

h m			
1 10 P.M.	*A.* 29·418; 83·0; 33	*B.* 29·552; 73·9; 37. — 8 = 780.	*C.* 29·465; 70·9; 62. — 3 = 793.
5 0 „	„ 29·355; 80·1; 40	„ 29·497; 76·1; 38. — 3 = 793.	„ 29·339; 73·9; 58. + 0 = 734.
6 15 „	„ 29·390; 76·3; 43		„ 29·422; 70 7; 62. + 0 = 780.

No. 286. KÁSARI, 20° 15′; 74° 49′, in the Dékhan, E. of Manikpúnj.
Loc. *Mean height of the village* . . . . . 1,899 ft. Wils.

No. 287. JAFARABÁD, 20° 12′; 76° 2′, in Khandésh, on the left bank of the Púrna.
Loc. *Level of the Púrna* . . . . . 1,686 ft. Cull.

No. 288. BASSÍM, 20° 6′; 77° 10′, in the Dékhan, N. of Kanĕrgáũ.
Loc. *Mean height of the village* . . . . . 1,758 ft. Cull.

No. 289. VINCHÚR, 20° 6′; 74° 14′, in the Dékhan, 29 miles E. of Nássik.
Loc. *Pagoda* . . . . . 2,267 ft. Bomb. Cal.

No. 290. RAMSÉJ, 20° 6′; 73° 46′, in the Dékhan, 7 miles N.W. of Nássik.
Loc. *Top of the hill* . . . . . 3,292 ft. Bomb. Cal.

No. 291. BHOVARGÁRH, 20° 6′; 73° 45′, in the Dékhan, 9 miles N.W. of Nássik.
Loc. *Hill Fort* . . . . . 3,561 ft. Bomb. Cal.

No. 292. KANDÁLLA, 20° 3′; 74° 49′, in the Dékhan, N.W. of Aurangabád.
Loc. *Mean height of the village* . . . . . 1,932 ft. Wils.

No. 293. GAMBERGÁRH, 20° 3′; 73° 4′, in the Kónkan, 8 miles S. of the Damán Gánga.
Loc. *Hill Station* . . . . . 2,270 ft. I. A. 24.

No. 294. DHONGÁŨ, 20° 2′; 75° 57′, in the Dékhan, N. of Jálna (Jáulna).
Loc. *Mean height of the village* . . . . . 1,893 ft. Cull

No. 295. ELŨRA (ELLÓRA), 20° 2′; 75° 11′, in the Dékhan, N.W. of Aurangabád.
Loc. *Entrance to the caves* . . . . . 2,064 ft. Cull.

No. 296. KANERGÁŨ, 19° 58′; 77° 10′, in the Dékhan, on the Pên Gánga.
Loc. *Level of the Pen Gánga* . . . . . 1,460 ft. Cull.

No. 297. DAULATABÁD, 19° 57′; 75° 14′, in the Dékhan, 5 miles N.W. of Aurangabád.
Loc. *Mean height of the village* . . . . . 2,013 ft. Cull.

No. 298. LÁSSUR, 19° 57′; 75° 0′, in the Dékhan, W. of Aurangabád.
Loc. *Mean height of the village* . . . . . 1,721 ft. Wils.

No. 299. CHÁNDA, 19° 56′; 79° 19′, in Berár, 2 miles N. of the Várda.
Loc. 1) *Mean height of the plain surrounding the town* . . . . 761 ft. Schl., Ad.
6, Adie. 1856, Jan. 14. *B* = Ágra; *C* = Aligárh, *D* = Level of the Kermér at Ramgárh.
9h A.M. *A*. 29·493; 71·1; 60. *B*. 29·607; 63·0; 35. = 766 ft. *C*. 29 520; 62 2; 68. 776 ft.
D. 27·906; 55·0; 90. — 741 ft.
Loc. 2) *Level of the Godáveri* . . . . . 525 ft. Godd

No. 300. MAHALÁKSHMI, 19° 56′; 72° 57′, in the Kónkan, 4 miles N. of Báranpur.
Loc. *Hill Station* . . . . . 1,540 ft. Bomb. Cal.

No. 301. TRÍMBÁK, 19° 54′; 73° 33′, in the Dékhan, W. of Nássik.

Loc. 1) *Hill Fort, S. of the town* . . . . . 4,255 ft. Bomb. Cal.
„ 2) *Hill Fort at Hursh, 3 miles W. of Trímbák* . . . . . 3,659 „ Bomb. Cal.
„ 3) *Otár, near Trímbák* . . . . . 4,096 „ Bomb. Cal.

No. 302. AURANGABÁD, 19° 53′; 75° 21′, in the Dékhan, a large civil and military station.

Loc. *Mean height of the station* . . . . . 1,885 ft. Bomb. Cal.

No. 303. JÁLNA (JÁULNA), 19° 51′; 75° 54′, in the Dékhan, a large station, 38 miles E. of Aurangabád.

Loc. *Level of the Kundálka* . . . . . 1,652 ft. Cull.

No. 304. SINNÁR, 19° 50′; 74° 1′, in the Dékhan, 18 miles S. of Nássik.

Loc. *Hill Pagoda* . . . . . 2,843 ft. Bomb. Cal.

No. 305. DÚDOLI, 19° 48′; 79° 23′, in Berár, on the left bank of the Várda.

Loc. *Level of the Várda* . . . . . 684 ft. Schl., Ad.

6, Adie.	1856, Jan. 15,	h m 6 45 A.M.	*A.* 29·587; 58·9.	Aligárh 29·508; 53·4; 79.	— 2 = 674 ft.
„	„	6 55 „	„ 29·564; 58·6.	„ 29·504; 53·6; 78.	— 2 = 693 „

No. 306. ARJI, 19° 44′; 73° 55′, in the Dékhan, 9 miles S.W. of Sinnár.

Loc. *Tree in the fort* . . . . . 3,615 ft. Bomb. Cal.

No. 307. HÍNGOLI, 19° 43′; 77° 11′, in the Dékhan, 185 miles N.W. of Haidarabád.

Loc. *Mean height of the village* . . . . . 1,495 ft. Scott.

No. 308. SOLAGÁÚ, 19° 43′; 75° 7′, in the Dékhan, S.W. of Aurangabád.

Loc. *Mean height of the village* . . . . . 1,478 ft. Wills.

No. 309. ÁUNDA, 19° 43′; 74° 5′, in the Dékhan, 12 miles S.E. of Sinnár.

Loc. *Fort* . . . . . 4,339 ft. Bomb. Cal.

No. 310. PÚTTA, 19° 42′; 73° 50′, in the Dékhan, 10 miles S.W. of Sinnár.

Loc. *Fort* . . . . . 4,569 ft. Bomb. Cal.

No. 311. KALDRÚG, *H. S.*, 19° 42′; 72° 50′, in the Kónkan, W. of the Súria, near the sea-shore . . . . . 1,553 ft. Bomb. Cal.

No. 312. KŌJ, 19° 41′; 73° 0′, in the Kónkan, 2 miles N.W. of Góra.

Loc. *Fort* . . . . . 1,906 ft. Bomb. Cal.

No. 313. TAL GHĀT, 19° 40′; 73° 33′, in the Dékhan, a principal pass on the road from Bombay to Nássik and Ágra.

Loc. 1) *Top of the ghāt* . . . . . 1,912 ft. Eastw

„ 2) *Top of the hill near the ghat* . . . . . 3,241 „ Bomb. Cal

No. 314. TÓKA, 19° 38′; 75° 1′, in the Dékhan, on the right bank of the Godáveri, S.W. of Aurangabád . . . . . 1,612 ft. Wils.

No. 315. YELLIGÁŪ, 19° 36′; 77° 14′, in the Dékhan, S.E. of Hingoli.

Loc. *Level of the Khēr* . . . . . 1,495 ft. Cull.

No. 316. KALSUBÁI PEAK, 19° 36′·0; 73° 42′·6 ⨁, in the Dékhan, 12 miles N.W. of Rajúr . . . . . 5,410 ft. Bomb. Cal.

This is the highest peak in the Dékhan.

No. 317. DURHÉSHVAR, 19° 34′; 74° 25′, in the Dékhan, 14 miles E. of Sangamnér.

Loc. *Pagoda* . . . . . 2,730 ft. Bomb. Cal.

No. 318. SÍRPUR, 19° 30′; 79° 35′, in Berár, 2 miles S. of the Pranhíta.

Loc. *Mean height of the plain* . . . . . 720 ft. Schl., Ad.

6, Adie. 1856, Jan. 16, 6^{h} 20^{m} P.M. *A.* 29·552; 69·4. Aligárh 29 520; 67·6.

No. 319. KĀRÁNDI, 19° 26′; 74° 54′, in the Dékhan, 12 miles S. of the Godáveri.

Loc. *Undefined* . . . . . 1,587 ft. Wils.

No. 320. BALÉSHVAR, 19° 26′; 74° 10′, in the Dékhan, 10 miles S. of Sangamnér.

Loc. *Hill Pagoda* . . . . . 3,827 ft. Bomb. Cal.

No. 321. Síngva, 19° 18′; 74° 53′, in the Dékhan, N.N.E. of Ahmednágger.

Loc. *Mean height of the village* . . . . . 1,573 ft. Wils.

No. 322. Bíbberi, 19° 17′; 79° 41′, in Berár, S. of Sírpur.

Loc. *Mean height of the plain* . . . . . 748 ft. Schl., Ad.

6, Adie. 1856, Jan. 17. *B* = Aligárh; *C* = Madras.

$6^h\ 15^m$ P.M. *A.* 29·386; 78·1. *B.* 29 406; 67·5; 53. = 769 ft. *C.* 30·110; 78·2. — 6 = 726 ft.

No. 323. Palvâti, 19° 15′; 76° 37′, in the Dékhan, N. of the Godáveri.

Loc. *Mean height of the village* . . . . . 1,551 ft. Cull.

No. 324. Nimbadéra, 19° 15′; 74° 41′, in the Dékhan, 9 miles N. of Ahmednágger.

Loc. *Mean height of the village* . . . . . 2,311 ft. Bomb. Cal.

No. 325. Nandér, 19° 9′; 77° 20′, in the Dékhan, on the left bank of the Godáveri.

Loc. 1) *Level of the Godáveri* . . . . . 1,152 ft. Cull.

„ 2) *Mean height of the village* . . . . . 1,276 „ Cull.

No. 326. Kher (Khair), 18° 59′; 76° 46′, in the Dékhan, on the right bank of the Godáveri.

Loc. 1) *Mean height of the village* . . . . . 1,293 ft. Cull.

„ 2) *Level of the Godáveri* . . . . . 1,245 „ Cull.

No. 327. Shirivéncha, or Sirúncha, 18° 51′: 79° 59′, in Berár, on the left bank of the Pranhíta.

Loc. *Mussálmán tomb near the fort* . . . . . 389 ft. Schl., Ad.

6, Adie 1856, Jan. 20, $11^h\ 45^m$ A.M. *A.* 29·737, 82 8; 55. Madras 30 132; 82·0. — 22 ft.

No. 328. Kaléshvar, 18° 49′; 79° 55′, in Berár, on the right bank of the Godáveri.

Loc. *Level of the Godáveri* . . . . . 239 ft. Schl., Ad.

6, Adie. 1856, Jan. 21, $6^h\ 10^m$ A.M. *A.* 29·847; 58·1. Madras 30 062; 73·3. + 8 ft.

No. 329. Ásiti, 18° 48′; 75° 11′, in the Dékhan, 30 miles S.E. of Ahmednágger.

Loc. *Mean height of the village* . . . . . 1,460 ft. Buist.

No. 330. SHENKOÁD, 18° 45′; 76° 55′, in the Dékhan, on the right bank of the Manáda.

Loc. *Level of the Manáda* . . . . . 1,590 ft. Cull.

No. 331. MAHADÉOPUR, 18° 44′; 80° 10′, in Oríssa, 1 mile S. of the Godáveri.

Loc. *Mean height of the plain* . . . . . 377 ft. Schl., Ad.

6, Adie. 1855, Jan. 21, 6h 30m P.M. *A.* 29·745; 82·4. Madras 30·103; 78·0. + 2 ft

---

No. 332. RAJÚRI, 18° 41′; 76° 57′, in the Dékhan, N.W. of Udgír.

Loc. *Mean height of the village* . . . . . 1,804 ft. Cull.

No. 333. PALMÉLLA, 18° 38′; 80° 13′, in Oríssa, S. of Mahadéopur.

Loc. *Mean height of the plain* . . . . . 354 ft. Schl., Ad.

6, Adie. 1856, Jan. 22, 4h 30m P.M. *A.* 29·666; 89·9. Madras 30·004; 83·2. − 8 ft.

No. 334. UDGÍR, 18° 23′; 77° 8′, in the Dékhan, S.E. of Rajúri.

Loc. *Mean height of the village* . . . . . 2,221 ft. Cull.

No. 335. CHANDASÚR, 18° 12′; 77° 13′, in the Dékhan, on the Manzera.

Loc. *Level of the Manzéra* . . . . . 1,762 ft. Cull.

No. 336. RAJUPÉT, 18° 10′; 80° 37′, in Oríssa, near the right bank of the Godáveri.

Loc. *Mean height of the plain* . . . . . 350 ft. Schl., Ad.

6, Adie. 1856, Jan. 24, 6h 30m P.M. *A.* 29·772; 78·0. Aligárh 29·363; 69·8; 60. − 2 ft.

No. 337. DAMARGÍDA, 18° 3′·4; 77° 39′·1 ⛁, in the Dékhan, 8 miles W. of Narainkáda.

Loc. *Hill Station* . . . . . 2,015 ft. G. T. S.

No. 338. DUDÁLLA, 17° 56′·3; 77° 51′·6 ⛁, in the Dékhan, near Gejváda.

Loc. *Hill Station* . . . . . 2,005 ft. G. T. S.

No. 339. BÍDER, 17° 53′·6; 77° 36′·0 ⛁, in the Dékhan, near the right bank of the Manzéra, 75 miles N.W. of Haidarabád.

Loc. 1) *Top of the minaret* . . . . . 2,350 ft. Bomb. Cal.

„ 2) *Base of the minaret* . . . . . 2,250 „ Bomb. Cal.

No. 340. MÁLLIGA, 17° 53′·3; 77° 35′·5 ♁, in the Dékhan, 3 miles W. of Bíder.
Loc. *Hill Station* . . . . . 2,282 ft. G. T. S.

No. 341. TAUDMANÚR, 17° 48′·5; 77° 57′·0 ♁, in the Dékhan, 7 miles W. of Jogipét.
Loc. *Hill Station* . . . . . 1,915 ft. G. T. S.

No. 342. SHILAPÍLLI, 17° 46′·3; 77° 39′·1 ♁, in the Dékhan, 3 miles S. of Múngi.
Loc. *Hill Station* . . . . . 2,273 ft. G. T. S.

No. 343. NANINPÓLU, 17° 41′; 80° 52′, in Oríssa, on the right bank of the Godáveri, opposite the hot springs at Bhadrachélam.
Loc. *Mean height of the plain* . . . . . 202 ft. Schl., Ad.
6, Adie. 1856, Jan. 27, 10h 10m A.M. *A.* 29·871; 78·8; 61. Madras 30·056; 81·7; 72. — 4 ft.

No. 344. GORAIGÁT, 17° 39′·7; 77° 49′·3 ♁, in the Dékhan, 4 miles S.W. of Munpílli.
Loc. *Hill Station* . . . . . 2,145 ft. G. T. S.

No. 345. KUKNÚR, 17° 33′; 81° 11′, in Oríssa, near the right bank of the Godáveri.
Loc. *Mean height of the plain* . . . . . 181 ft. Schl., Ad.
6, Adie. 1856, Jan. 28, 7h P.M. *A.* 29·808; 77·4. Madras 29·963; 78·2. + 3 ft.

No. 346. PATHANCHÍRU, 17° 32′; 78° 16′, in the Dékhan, N.W. of Haidarabád.
Loc. *Mean height of the village* . . . . . 2,062 ft. Cull.

No. 347. TOPIKÓNDA, 17° 30′·7; 78° 3′·3 ♁, in the Dékhan, 12 miles E. of Mominpét.
Loc. *Hill Station* . . . . . 2,257 ft. G. T. S.

No. 348. KOTAMARPÍLLI, *H. S.*, 17° 30′·5; 77° 44′·1 ♁, in the Dékhan, 10 miles W. of Mominpét . . . . . 2,285 ft. G. T. S.

No. 349. SEDASHAHPÉT, 17° 30′; 78° 0′, in the Dékhan, N.W. of Haidarabád.
Loc. *Mean height of the village* . . . . . 1,825 ft. Scott.

No. 350. SIKANDERABÁD, 17° 26′·7; 78° 28′·0 ♁, in the Dékhan, 4 miles N. of Haidarabád . . . . . 1,830 ft. Cull.

No. 351. ANANTAGHÉRRI, 17° 18′·6; 77° 50′·3 ♁, in the Dékhan, 11 miles N. of Párgi.

Loc. *Hill Station* . . . . . 2,396 ft. G. T. S.

No. 352. MÁLKAPUR, 17° 17′; 78° 48′, in the Dékhan, 32 miles E. of Haidarabád.

Loc. *Mean height of the village* . . . . . 1,591 ft. Cull.

No. 353. NARKAMPÍLLI, 17° 13′; 79° 12′, in the Dékhan, S. of Vamalkónda.

Loc. *Mean height of the village* . . . . . 959 ft. Cull

No. 354. PÁRGI, 17° 12′·7; 77° 54′·4 ♁, in the Dékhan, near Málla Boyengudam.

Loc. *Hill Station* . . . . . 2,456 ft. G. T. S

No. 355. RAJAMÁNDRI, or RAJAMAHÉNDRI, 17° 10′·5; 81° 46′·6 ⚐, in Orissa, a large station, W. of Koringa.

Loc. 1) *Dák bángalo* . . . . . 81 ft. Schl., Ad.

„ *Undefined* . . . . . 68 „ Cull

6, Adie. 1856, Feb. 2, 6 h 45 m P.M. *A.* 29·898; 77·1; 83. Madras 29·952; 80 0; 80 = 80 ft

„ „ 3 h 20 m A.M. „ 29·957; 82·6; 66. „ 30 014; 83 8, 69. = 82 „

Loc. 2) *Level of the Godáveri* . . . . . 30 ft. Cull.

No. 356. MADÁVARAM, 17° 9′; 79° 23′, in the Dékhan, a small village.

Loc. *Mean height of the village* . . . . . 527 ft. Cull.

No. 357. KOTAKODÁNGAL, 17° 8′·1; 77° 37′·5 ♁, in the Dékhan, a large village.

Loc. *Hill Station* . . . . . 1,991 ft. G. T. S.

No. 358. KANNAPÚRAM, 17° 7′; 81° 25′, in Orissa, 12 miles W. of the Godáveri.

Loc. *Mean height of the plain* . . . . . 388 ft. Schl., Ad.

6, Adie. 1856, Jan. 30, 6 h 40 m P.M. *A.* 29·571; 74 9. Madras 29 939; 78 5. + 4 ft.

No. 359. NANDAGÁMA, 17° 7′; 78° 16′, in Maissúr, S.W. of Haidarabád.

Loc. *Undefined* . . . . . 2,093 ft. Cull

No. 360. RAJANÁGARAM, 17° 4′; 81° 53′, in the Karnátik, 9 miles S.E. of Rajamandri.

Loc. *Mean height of the village* . . . . . 172 ft. Cull.

No. 361. SAMALKÓTTA, 17° 3′·3; 82° 13′·7 ⊥, in the Karnátik, 8 miles W. of the sea.
Loc. *Mean height of the village* . . . . . 84 ft. Cull.

No. 362. GAURIPÁTNAM, 17° 2′; 81° 38′, in the Karnátik, W. of Rajamándri.
Loc. *Mean height of the village* . . . . . 46 ft. Cull.

No. 363. PÁNGRI, 17° 1′; 81° 41′, in Oríssa, 10 miles W. of Rajámándri.
Loc. *Dák bángalo* . . . . . 84 ft. Schl., Ad.
6, Adie. 1856, Jan. 31, 6h P.M. *A.* 29·796; 77·9. Madras 29·854; 80·0.

No. 364. NALACHÉRLA, 16° 58′; 81° 24′, in the Karnátik, 22 miles W. of Rajamándri.
Loc. *Mean height of the village* . . . . . 150 ft. Cull.

No. 365. POCHÁMA GHĀT, 16° 57′·7; 77° 55′·2 ⊥, in the Dékhan, near Kusmasándram.
Loc. *Hill Station* . . . . . 2,446 ft. G. T. S.

No. 366. KANKÚRTI, 16° 54′·6; 77° 26′·8 ⊥, in the Dékhan, 6 miles N. of Gundamettakál.
Loc. *Hill Station* . . . . . 2,420 ft. G. T. S.

No. 367. KANDAKÚR, 16° 47′·6; 77° 19′·4 ⊥, in the Dékhan, 9 miles S.E. of Chintelpílli.
Loc. *Hill Station* . . . . . 2,031 ft. G. T. S.

No. 368. NANDIGÁṺ, 16° 46′; 80° 17′, in the Karnátik, near the right bank of the Munár . . . . . 263 ft. Cull.

No. 369. ELÚR, 16° 44′; 81° 7′, in the Karnátik, W. of the Kolár lake.
Loc. *Mean height of the village* . . . . . 78 ft. Cull.

No. 370. INPAHGÁT, 16° 42′·7; 77° 38′·3 ⊥, in the Dékhan, 4 miles S. of Katakónda.
Loc. *Hill Station* . . . . . 2,409 ft. G. T. S.

No. 371. MÁKTAL, 16° 29′; 77° 28′, in Maissúr, 90 miles S.W. of Haidarabád.
Loc. *Mean height of the village* . . . . . 1,215 ft. Cull.
„ *ditto* . . . . . 1,245 „ Scott.

No. 372. Levels along the proposed Line of Railway from Súrat to Ágra.

Communicated by Sir R. Hamilton (see p. 6).

The levels are all referred to low water at Bharúch (Broach).

Distance in Miles from Bombay.	Station.	Height.	Distance in Miles from Bombay.	Station.	Height.
		Feet			Feet.
	Súrat	80	548	Sehór	1,620
219	Bharúch (Broach)	143	567	Bhopál	1,690
263	Dubhái	145	578	Bálrampur ghat	1,640
334	Rájpur Áli	994	604	Bhílsa	1,406
352	Joneámi ghāt	1,385	636	Údepur	1,336
369	Pára	1,325	698	Badvár (on the road from	
387	Tírla ghāt	1,850		Lállatpur to Chanderi	1,250
419	Dhar	1,850	715	Serías ghat, near the Bétva	1,008
459	Indúr	1,853	757	Jhánsi	745
480	Ragugárh	1,960	785	Góra, S. bank of the Send	640
495	Góla	1,650	806	Ántri pass	960
503	Táppa bári ghāt	1,788	817	Murár (Gválior)	670
507	Táppa ghāt	1,865	849	Chámbal river, flood level of	458
524	Áshta	1,620	884	Ágra	565

AREA V.

DÉKHAN AND MAISSÚR.

Diagonal, from north-west to south-east: Bombay viâ Púna and Bellári to Madras.

The general character of the area is mountainous, including as it does the principal elevations of the Dékhan and a great part of Maissúr. The only low country is on its eastern border, where a broad belt of alluvial soil runs along the Karimánal (Koromándel) coast, forming one of the richest districts of India. To the west the *Ghâts* constitute the principal feature, and present a range of mountains rising abruptly above the Kónkan, with a very steep western slope, and sending out many spurs and plateaux towards the Dékhan. This range is intersected by several passes, or ghāts, of which the Bhōr ghat and the Tal ghāt (see p. 195) must be mentioned as the most remarkable. A railway, connecting Púna with Bombay, leads over the Bhōr ghāt.

The principal river of this area is the Krishna, which takes its rise near the Mahabaléshvar plateau, at a height of 4,110 feet. The highest peak in the Dékhan, the Kalsubái, attains a height of 5,410 feet (see p. 195).

No. 1. Assíri, 19° 42′; 72° 44′, in the Kónkan, 18 miles N.E. of Mahím.

Loc. *Fort on the island* . . . . . 1,713 ft. Bomb. Cal.

No. 2. Bassín, 19° 2′; 72° 49′, in the Kónkan, N. of Bombay.

Loc. *Top of the church* . . . . . 509 ft. Bomb. Cal.

No. 3. Bombay, 18° 53′·5; 72° 49′·1 ⏚ (referred to the Observatory), in the Kónkan.

Loc. 1) *Cistern of the barometer at the Government Observatory* 38 ft. Fergusson.

„ 2) *Top of the spire of St. Thomas's Church* . . . . . 168 „ Bomb. Cal.

Loc. 3) *Top of the spire of the light-house* . . . . . 148 ft. Bomb. Cal.

„ 4) *Top of the dome of the light-house* . . . . . 141 „ Bomb. Cal.

The height of several points of the island (loc. 5 to 8) was determined with the aneroid by Adolphe, in Nov., 1854.

Loc. 5) *Top of the hill, S. of Vórli point. A Mohamedan mosque is erected upon it* . . . . . 132 ft. Schl., Ad.

Loc. 6) *Top of the hill, S. of the sluices, near Love Grove, Vórli range* . . . . . 117 „ Schl., Ad.

Loc. 7) *Top of Málabar hill* . . . . . 144 „ Schl., Ad.

„ 8) *Top of Mazagón hill* . . . . . 61 „ Schl., Ad.

No. 4. BARÚR, 20° 5′; 72° 51′, in the Kónkan, near the sea shore, 10 miles N.E. of Dhánu.

Loc. *Top of the hill* . . . . . 1,761 ft. Bomb. Cal.

No. 5. ÚRAN, 18° 54′·0; 72° 54′·7 ⨁, in the Kónkan, E. of Bombay.

Loc. *Pagoda* . . . . . 697 ft. Bomb. Cal

No. 6. TROMBAY, 19° 2′; 72° 56′, in the Kónkan, N. of Bombay.

Loc. *Top of a hill, W. of Trombay* . . . . . 1,001 ft. Bomb. Cal

---

No. 7. TÁKMĂK, 19° 35′; 72° 56′, in the Kónkan, 7 miles S.W. of Góra.

Loc. *Hill fort* . . . . . 2,616 ft. Bomb. Cal

No. 8. KAMANDRÚG, 19° 24′; 72° 58′, in the Kónkan, 10 miles E. of Bassín.

Loc. *Hill fort* . . . . . 2,160 ft. Bomb. Cal.

No. 9. THÁNAH, or TÁNNA, 19° 12′; 72° 59′, in the Kónkan, N. of Bombay.

Loc. 1) *Top of the church spire* . . . . . 106 ft. Bomb. Cal.

„ 2) *Hill, 3 miles E. of Thánah* . . . . . 1,369 „ Bomb. Cal.

„ 3) *Hill at Kólva, near Thánah* . . . . . 973 „ Bomb. Cal.

No. 10. KĂRNÁLA, 18° 53′; 73° 8′, in the Kónkan, 7 miles S. of Panvél.

Loc. *Fort on the Funnel hill* . . . . . 1,552 ft. Bomb. Cal.

No. 11. KAILÁS HILL, 18° 18′; 73° 9′, in the Kónkan, 16 miles W. of Índapur.

Loc. *Top of the hill* . . . . . 2,019 ft. Bomb. Cal.

No. 12. MÉRA, 18° 41′; 73° 10′, in the Kónkan, N. of Nagathána, or Nagótna.

Loc. *Hill Station* . . . . . 1,860 ft. Bomb. Cal.

No. 13. BHAU MÁLLANG, 19° 6′; 73° 12′, in the Kónkan, a hill 10 miles N.E. of Panvél.

Loc. *Top of the hill* . . . . . 2,650 ft. Bomb. Cal.

No. 14. JINKÓR, 18° 56′; 73° 14′, in the Kónkan, 2 miles N. of Chok.

Loc. *Fort* . . . . . 2,065 ft. Bomb. Cal.

No. 15. PRÁBHĂL, 18° 58′; 73° 14′, in the Kónkan, 5 miles N. of Chōk.

Loc. *Fort* . . . . . 2,320 ft. Bomb. Cal.

No. 16. CHŌK, 18° 54′; 73° 15′, in the Kónkan, a small village, E. of Bombay, on an affluent of the Megáuni nálah.

Loc. *Dak bángalo* . . . . . 172 ft. Schl., Rob.

3, Oertling. 1855, Jan. 1, 3h P.M. 29·706; 88·0. Bombay 29·847; 85·0. — 6 ft.

No. 17. CHÁNDARI, 19° 4′; 73° 15′, in the Kónkan, 8 miles N. of Párbhăl (Prábhās).

Loc. 1) *Fort* . . . . . 2,369 ft. Bomb. Cal.

„ 2) *Top of the hill* . . . . . 2,601 „ Bomb. Cal.

No. 18. NAGATHÁNA, or NAGÓTNA GHAT, 18° 29′; 73° 15′, in the Kónkan, forming the watershed between the Ámba and Kundalíka.

Loc. *Top of the ghat* . . . . . 288 ft. Schl., Ad.

2, Pistor. 1854, Dec. 4, 6h P.M. *A.* 29·651, 80·2; 75. Bombay 29·907; 81·0; 80.

No. 19. KÁPRIA, 18° 53′; 73° 18′, in the Kónkan, 5 miles S.E. of Chōk.

Loc. 1) *Station on a hill* . . . . . 1,531 ft. Bomb. Cal.

„ 2) *Top of Nalánda hill, near Kápria* . . . . . 1,366 „ Bomb. Cal.

No. 20. BHŌR GHĀT, 18° 44′; 73° 22′, in the Dékhan, the principal pass on the route from Bombay to Púna.

Loc. 1) *Top of the ghat* . . . . . 1,798 ft. Schl., Herm.

„ *ditto* . . . . . 1,800 „ Eastw.

3, Oertling. 1855, Jan. 2. *B* = Bombay; *C* = Púna.

$8^h\ 45^m$ A.M. *A*. 28·131; 68·0; 77. *B*. 29·944; 70·0; 77. — 30 = 1,801 ft. *C*. 28·142; 65·1; 64 = 1,795 ft.

Loc. 2) *Toll gate, on the western slopes of the Bhōr ghat* . . 1,376 ft. Schl., Herm.

3, Oertling. 1855, Jan. 2. *B* = Bombay; *C* = Púna.

8^h A.M. *A*. 28·540; 67·1; 83. *B*. 29·929; 73·5; 85. + 10 = 1,382 ft. *C*. 28·125; 65·8 1,370 ft.

Loc. 3) *Spring, on the western slopes of the Bhōr ghat* . . . 1,183 ft. Schl., Rob

= 193 ft. below the toll gate; by aneroid.

No. 21. KÁMPULI, 18° 47′; 73° 22′, in the Kónkan, on the south-western foot of the Bhor ghāt. . . . . 141 ft. Wils.

No. 22. KHANDÁLA, 18° 46′; 73° 23′, in the Dékhan, a large village on the north-eastern foot of the Bhor ghāt.

Loc. 1) *Dāk bángalo* . . . . . 1,768 ft. Schl., Rob.

„ *ditto* . . . . . 1,744 „ Bust.

3, Oertling. 1855, Jan. 3.

10^h A.M. *A*. 28·186; 75·9; 68. Bombay 29·945; 77·3; 70. - 35 = 1,761 ft.

2^h P.M. „ 28·067; 70·3; 60. „ 29·864; 84 0; 62. — 72 = 1,771 „

Loc. 2) *Spring, 3 miles E. of Khandála* . . . . . 1,928 ft. Schl., Rob.

= 160 ft. above the dāk bángalo at Khandála; by aneroid.

„ 3) *Magfánni hill, 2 miles S.W. of Khandála* . . . . . 2,601 ft. Bomb. Cal

---

No. 23. PÁNGOLI, 18° 47′; 73° 25′, in the Dékhan, 6 miles N.E. of Khandála.

Loc. 1) *Top of the hill* . . . . . 2,727 ft. Bomb. Cal.

„ 2) *Top of Rajmáchi hill, near Pángoli* . . . . . 2,716 „ Bomb. Cal.

No. 24. LANÁULI, 18° 45′; 73° 26′, in the Dékhan, E. of the Bhor ghat.

Loc. *Mean height of the village* . . . . . 2,307 ft. Eastw.

No. 25. DUNGĂRLGÁŨ, 18° 45′; 73° 27′, in the Dékhan, 2 miles W. of Kárli.

Loc. 1) *Western extremity of the Kárli base* . . . . . 2,080 ft. Bomb. Cal.

„ 2) *Eastern extremity of the Kárli base* . . . . . 2,071 „ Bomb. Cal.

No. 26. JIÚRA, 18° 48′; 73° 27′, in the Dékhan, 4 miles N.W. of Kárli.

Loc. *Station on the hill* . . . . . 2,881 ft. Bomb. Cal.

No. 27. KÁRLI, 18° 45′; 73° 28′, in the Dékhan, E. of the Bhōr ghāt.

Loc. 1) *Dak bángalo* . . . . . 2,012 ft. Schl., Rob.

„ *ditto* . . . . . 2,016 „ Buist.

We take the mean of our and Buist's observations as final result.

3, Oertling. 1855, Jan. 2, 9h P.M. *A.* 27·871; 59·9; 74. Bombay 29·868; 73·8; 75. = 2,008 ft.

Loc. 2) *Kárli Caves* . . . . . 2,531 ft. Buist.

„ 3) *Top of the hill at Bhátra, near Kárli* . . . . . 3,635 „ Bomb. Cal.

No. 28. KINÉSHVAR, 17° 55′; 73° 33′, in the Kónkan, a village on the western foot of the Pār ghat.

Loc. *Dak bángalo* . . . . . 550 ft. Schl., Ad.

5, Adie. 1854, Dec. 7, 2h P.M. *A.* 29·312; 83·8. Bombay 29·865; 83·4. — 35 ft.

No. 29. MÁNDVI HILL, 18° 38′; 73° 34′, in the Dékhan, 3 miles E. of Tíkona fort.

Loc. *Top of the hill* . . . . . 4,123 ft. Bomb. Cal.

No. 30. PÁLA PEAK, 18° 49′; 73° 34′, in the Dékhan, 7 miles N.N.E. of Kárli.

Loc. *Top of the peak* . . . . . 3,486 ft. Bomb. Cal

No. 31. BHÍMA SÁNKAR, 19° 4′; 73° 34′, in the Dékhan, 15 miles W.S.W. of Ambigáū.

Loc. 1) *Top of the hill* . . . . . 3,448 ft. Bomb. Cal.

„ 2) *Table-land surrounding it* . . . . . 3,198 „ Buist.

„ 3) *Source of the Bhíma* . . . . . 3,090 „ Buist.

No. 32. PĀR GHĀT. 17° 56′; 73° 35′, in the Kónkan, a pass in the western ghāts, W. of Mahabaléshvar.

Loc. 1) *Top of the ghat* . . . . . 2,698 ft. Schl., Ad.

5, Adie. 1854, Dec. 8, 9h A.M. *A.* 27·277; 71·2; 62. Bombay 29·945; 76·4; 62. — 34 ft.

Loc. 2) *Spring on the western slopes of the Pār ghat* . . . . 1,957 ft. Schl., Ad.

5, Adie. 1854, Dec. 8, 8h A.M. *A.* 28·025, 74·8; 85. Bombay 29·936; 72·3; 85. + 13 ft.

No. 33. TÓRNA, 18° 16′·4; 73° 36′·4 ⏚, in the Dékhan, 24 miles S.W. of Púna.

Loc. *Fort* . . . . . 4,619 ft. Bomb. Cal.

No. 34. PĀR, 17° 56′; 73° 36′, in the Dékhan, a village on the eastern slopes of the Pār ghāt.

Loc. *Level of a nálah near the dāk bángalo.* . . . . . 2,305 ft. Schl., Ad.

5, Adie. 1854, Dec. 8, 11h 30m A.M. *A.* 27 598; 75·6; 52. Bombay 29 908; 81·1; 52. — 77 ft.

No. 35. SÁTI, 18° 44′; 73° 37′, in the Dékhan, a small village W. of Vārgáū.

Loc. *Bridge over a nálah* . . . . . 1,983 ft. Schl., Rob.

= 61 ft. below the dāk bángalo at Vargáū; by aneroid.

No. 36. VĂRGÁŪ, 18° 44′; 73° 38′, in the Dékhan, a small village on an affluent of the Andár.

Loc. *Dak bángalo* . . . . . 2,044 ft. Schl., Rob.

„ *Undefined* . . . . . 1,981 „ Buist.

3, Oertling. 1855, Jan. 3.

8h A.M.	*A.* 27·926; 61·9; 73.	Bombay 29 941; 72 3; 81.	20	—	2,042 ft
11h „	„ 27·902; 73·0; 44.	„ 29 938; 81·6; 61.	— 61		2,045 „
12 Noon	„ 27·867; 77·4; 45.	„ 29·908; 82 3; 65.	61		2,045 „

No. 37. MAHABALÉSHVAR, 17° 55′·4; 73° 38′·7 ⏚ (referred to Syndey's Point), in the Dékhan, a sanitarium situated in the western ghats.

Loc. 1) *Bángalo Cliffton* . . . . . 4,292 ft. Schl., Ad.

1854, Dec.	Hour.	Mahabaléshvar.	Bombay.	Per. Corr.	Height
	h m				
11	4 0 P.M.	25·737; 69 8; 30	29 932; 87·4; 51	— 141	1,295
11	6 0 „	25·752; 67·1, 52	29·946; 79·6; 72	— 100	1,295
12	12 Noon	25·800; 70 2; 30	30·009; 85·0; 54	141	1,289
12	2 0 P.M.	25·756; 68·4; 40	29·963; 85·7; 59	— 111	1,295
12	4 0 „	25 761; 67 6; 46	29·967; 82·5; 66	— 113	1,273
12	6 30 P.M.	25·796; 62 6; 58	29 993; 79·8; 80	— 77	1,296
13	12 Noon	25·800; 66·9; 40	30 027; 84·0; 57	— 113	1,289
13	3 30 P.M.	25·768; 67 3; 37	29 976; 87 4; 57	— 143	1,293
13	4 30 „	25·784; 66·2; 50	29·991; 85·3; 67	— 143	1,278
14	12 30 „	25·764; 67·3; 30	30 020; 82·6; 51	— 145	1,315
14	2 0 „	25 733; 65·7; 39	29·974; 82·4; 60	— 144	4,299
15	5 30 „	25·713; 64 0; 47	29 935; 78 9; 67	— 122	4,283

Loc. 2) *Mean elevation of the Mahabaléshvar plateau* . . . . 4,500 ft. Syk.

„ 3) *Highest point on a rock, E. of Beckwith's monument* 4,712 „ Bomb. Cal.

The following points were measured with the aneroid by Adolphe, 1854, Dec.

Loc. 4) *Source of the Krishna* . . . . . 4,110 ft. Schl., Ad.

„ 5) *Yénna lake* . . . . . 4,070 „ Schl., Ad.

„ 6) *Southern border of the Mahabaléshvar plateau* . . . 3,510 „ Schl., Ad.

„ 7) *Eastern border of ditto* . . . . . 3,930 „ Schl., Ad.

No. 38. NÁNA GHÁT, 19° 17′; 73° 42′, in the Dékhan, S. of the Málsej ghāt.

Loc. *Top of the ghat* . . . . . 2,429 ft. Buist.

No. 39. SINHGÁRH, 18° 21′·9; 73° 44′·4 ✝, in the Dékhan, a large fort, 15 miles S.W. of Púna.

Loc. 1) *Inside the fort* . . . . . 4,322 ft. Bomb. Cal.

„ 2) *Capt. Graham's bángalo* . . . . . 4,157 „ Schl., Ad.

„ *ditto* . . . . . 4,162 „ Eastw.

8, Thermo-barom. 1854, Dec. 28, 5h P.M. *A.* 204″·57 Fahr.; 66·4; 54. Bombay 29·852; 80·3; 67; — 140 = 4,152 ft.

We take the mean of our and Eastwick's data as final result.

Loc. 3) *Metvári, on the northern slopes of Sinhgárh fort.* . . 3,227 ft. Schl., Ad.

— 930 ft. below Capt. Graham's bángalo; by aneroid.

Loc. 4) *Aghámba Hill Station, 14 miles S.W. of Púna* . . . 3,769 ft. Bomb. Cal.

No. 40. SHETARVÁRI HILL, 18° 41′; 73° 45′, in the Dékhan, N.W. of Púna.

Loc. *Top of the hill* . . . . . 2,196 ft. Schl., Ad.

— 152 ft. below the dāk bángalo at Vārgáũ; by aneroid.

No. 41. DHÓNJA, 18° 24′; 73° 45′, in the Dékhan, N. of fort Sinhgárh.

Loc. *Northern foot of the Dhónja ghāt* . . . . . 2,374 ft. Schl., Ad.

— 853 ft. below Metvári; by aneroid.

No. 42. NÍGRI, 18° 40′; 73° 47′, in the Dékhan, 12 miles N.W. of Púna.

Loc. *Dak bángalo* . . . . . 1,939 ft. Schl., Herm.

3, Oertling. 1855, Jan. 3, 9h P.M. *A.* 28 013; 63 9; 78. Bombay 29·941; 72 6; 79;0.

No. 43. HÁRICHANDRAGÁRH, 19° 22′; 73° 48′, in the Dékhan, a large fort.

Loc. 1) *Temple of the Mahadéo* . . . . . 3,894 ft. Buist.

„ 2) *Pile of stones in the fort* . . . . . 4,680 „ Bomb. Cal.

„ 3) *Foot of the fort at Kiréshvar* . . . . . 2,221 „ Buist.

No. 44. MÁLSEJ GHÁT, 19° 20′; 73° 51′, in the Dékhan, S. of fort Hárichandragárh.

Loc. *Top of the ghát* . . . . . 2,062 ft. Eastw.

No. 45. DHANKÁURI, 18° 28′; 73° 52′, in the Dékhan, a small village, 3 miles S. of Púna.

Loc. *Level of a nálah* . . . . . 2,132 ft. Schl., Ad.

= 348 ft. above Púna; by aneroid.

No. 46. YÉLU, or VÉLU, 18° 21′; 73° 52′, in the Dékhan, a small village on an affluent of the Níra.

Loc. *Level of the affluent* . . . . . 2,525 ft. Schl., Ad.

5, Adie. 1854, Dec. 19, 4^{h} P.M. *A.* 27·322; 74·5; 5. *D.* Bombay 29 862; 83·5, 57. — 85 ft. Loc. Corr. — 23 ft.

No. 47. CHÁKAN, 18° 45′; 73° 52′, in the Dékhan, 18 miles N. of Púna.

Loc. 300 *yards W. of the village* . . . . . 1,936 ft. Buist.

No. 48. PÚNA, 18° 30′·4; 73° 52′·1 ♁ (referred to St. Mary's Church), in the Dékhan, a large military station.

Loc. 1) *Dák bángalo* . . . . . 1,784 ft. Schl., Ad.

The detail of the observations upon which this result is based is given p. 56.

Loc. 2) *Confluence of the Múta and Múla rivers, at Sángam, on the north-side of Púna* . . . . . 1,732 ft. Schl., Ad.

= 52 ft. below the dák bángalo at Púna; by aneroid.

Loc. 3) *Hay Cottage* . . . . . 1,823 ft. Buist.

„ 4) *Top of the spire of St. Mary's Church* . . . . . 2,035 „ Bomb. Cal

---

No. 49. KATRÚJ GHÁT, 18° 24′; 73° 53′, in the Dékhan, a pass leading from Yélu to Púna.

Loc. *Top of the ghat* . . . . . 3,019 ft. Schl., Ad.

5, Adie. 1854, Dec. 19, 5^{h} P.M. *A.* 26·850; 68·7; 56. Bombay 29 866; 80·8; 62. — 101 ft.

No. 50. VARÁDA, 19° 16′; 73° 53′, in the Dékhan, 6 miles N. of Junir.

Loc. *Top of the hill* . . . . . 4,655 ft. Bomb. Cal.

No. 51. BAPDÉO GHÁT, 18° 24′·4; 73° 53′·5 ♁, in the Dékhan, a pass S. of Púna.

Loc. *Temple on the ghat* . . . . . 3,499 ft. Schl., Ad.

= 1,715 ft. above the dāk bángalo at Púna; by aneroid.

No. 52. DÍGHI HILL, 18° 37′; 73° 54′, in the Dékhan, 7 miles N. of Púna.

Loc. *Top of the hill* . . . . . 2,489 ft. Bomb. Cal.

No. 53. VÁI, 17° 56′; 73° 54′, in the Dékhan, a village on the left bank of the Krishna, E. of Mahabaléshvar.

Loc. 1) *Level of the Krishna* . . . . . 2,245 ft. Schl., Ad.

5, Adie 1854, Dec. 16, 9h P.M. *A.* 27·646; 73·2; 72. Bombay 29·901; 79·1; 72. — 52 ft. Loc. Corr. — 21 ft.

Loc. 2) *Pánjgámi hill, near Vái* . . . . . 4,000 ft. Bomb. Cal.

No. 54. BHIÚRI, 18° 23′; 73° 56′, in the Dékhan, a small village at the south-eastern foot of the Bapdéo ghāt.

Loc. *Spring near Bhiúri* . . . . . 3,204 ft. Schl., Ad.

= 295 ft. below the temple at Bapdéo ghāt; by aneroid.

No. 55. PURANDÁR, 18° 16′·6; 73° 57′·3 ♁, in the Dékhan, a hill fort S.S.E. of Púna.

Loc. 1) *Top of the Raj ghāt* . . . . . 4,426 ft. Schl., Herm.

„ *ditto* . . . . . 4,472 „ Buist.

3, Oertling. 1855, Jan. 6, 7h 30m P.M. *A.* 25·590; 55·4; 75. Bombay 29·874; 73·9; 75·0.

Loc. 2) *Summit of the hill, near the Raj ghat* . . . . . 4,558 ft. Schl., Herm.

„ *ditto* . . . . . 4,571 „ Bomb. Cal.

= 132 ft. above the Raj ghāt; by aneroid.

„ 3) *Entrance to the hospital* . . . . . 3,974 „ Schl., Herm.

3, Oertling. 1855, Jan. 6, 8h 30 P.M. *A.* 26·023; 58·6; 65. Bombay 29·890; 73·0; 70.

Loc. 4) *Tank near the fort* . . . . . 4,108 ft. Schl., Herm.

= 318 ft. below the Raj ghat; by aneroid.

No. 56. SHÍRVAL, 18° 8′; 73° 59′, in the Dékhan, a village on the right bank of the Nira.

Loc. 1) *Dák bángalo* . . . . . 1,863 ft. Schl., Ad.

5, Adie. 1854, Dec. 18, 11h A.M. *A.* 28·150; 75·9; 60. Bombay 30·030; 81·6; 60; — 62 ft.

Loc. 2) *Level of the Nira.* . . . . . 1,781 ft. Schl., Ad.

= 82 ft. below the dák bángalo; by aneroid.

No. 57. VANKÚLVAR HILL, 18° 50′; 73° 59′, in the Dékhan, 9 miles N.E. of Chákan.

Loc. *Top of the hill* . . . . . 2,848 ft. Bomb. Cal.

No. 58. TÚLAPUR, 18° 39′; 74° 0′, in the Dékhan, at the junction of the Indráuni and Bhíma.

Loc. *Level of the junction.* . . . . . 1,778 ft. Buist

No. 59. VAPGÁÚ HILL, 18° 52′; 74° 0′, in the Dékhan, 8 miles N. of Páhul.

Loc. *Top of the hill* . . . . . 2,875 ft. Bomb. Cal

No. 60. SÁSSUR, or SÁSVAR, 18° 20′; 74° 1′, in the Dékhan, a large village on the Kára nádi, 16 miles S.E. of Púna.

Loc. 1) *Dak bángalo* . . . . . 2,491 ft. Schl, Ad.

Loc. 2) *Undefined* . . . . . 2,417 „ Buist.

2, Pistor. 12h 45m P.M. *A.* 27·398; 77·0; 41. Bombay 29·890, 78 4; 67. — 75 = 2,497 ft
„ 3h 10m „ „ 27·363; 72 1; 49. „ 29·850; 79·4, 63. — 75 = 2,485 „

Loc. 2) *Level of the Kára nádi* . . . . . 2,425 ft. Schl., Ad.

= 66 ft. below the dák bángalo at Sássur, or Sásvar; by aneroid.

Loc. 3) *Tank, S. of Sássur, on the road to Purandár* . . . . 3,753 ft. Schl., Herm.

= 1,262 ft. above the dák bángalo at Sássur, or Sásvar; by aneroid.

No. 61. LÚNI, 18° 37′; 74° 1′, in the Dékhan, 10 miles N.N.E. of Púna.

Loc. *Undefined* . . . . . 1,729 ft. Wils.

No. 62. VÁRHI, 17° 42′; 74° 2′, in the Dékhan, a small village, on the left bank of the Yénna.

Loc. *Level of the Yénna* . . . . . 1,984 ft. Schl., El.

= 142 ft. above the level of the Kríshna at Varút; by aneroid.

No. 63. SATÁRA, 17° 41′; 74° 2′, in the Dékhan, a military station, S.E. of Púna.

Loc. 1) *Residency* . . . . . 2,252 ft. Schl., Herm.

„ *ditto* . . . . . 2,241 ft. Buist.

3, Oertling. 1855, Jan. 9, 12h 30m P.M. *A.* 27 630; 74·3; 40. Bombay 29·883; 70·6; 71. — 67 = 2,228 ft.
„ „ „ 7h 30m „ „ 27·619; 66·9; 57. „ 29·880; 75·2; 81. — 11 = 2,288 „

We take the mean of our and Buist's observations as final result.

Loc. 2) *Cantonment* . . . . . 2,320 ft. Syk.

„ 3) *Fort* . . . . . 3,200 „ Syk.

No. 64. NARAINGÁRH, 19° 6′, 74° 3′, in the Dékhan, 4 miles E. of Naraingáû.

Loc. *Hill Pagoda* . . . . . 2,888 ft. Bomb. Cal.

No. 65. VARÚT, 17° 45′; 74° 4′, in the Dékhan, a small village, on the left bank of the Krishna.

Loc. *Level of the Krishna* . . . . . 1,842 ft. Schl., El.

– 264 ft. below the level of the Vásna at Pálsi; by aneroid.

No. 66. DEÚR, 17° 51′; 74° 7′, in the Dékhan, a village on the Vásna nádi, N.E. of Satára.

Loc. *Dák bángalo* . . . . . 2,441 ft. Schl., Ad.

2, Pistor. 1855, Jan. 8.
4h 15m P.M. *A.* 27·359; 74·7; 30. Bombay 29·785; 79 1; 64. — 40 = 2,439 ft.
7h „ „ 27·390; 61 2; 52. „ 29 827; 74 0; 71. – 24 = 2,443 „

No. 67. PÁLSI, 17° 48′; 74° 7′, in the Dékhan, a small village, on the left bank of the Vásna nádi.

Loc. *Level of the Vásna* . . . . . 2,106 ft. Schl., El.

335 ft. below the dāk bángalo at Deúr; by aneroid.

No. 68. JIJÚRI, 18° 16′; 74° 9′, in the Dékhan, a village 28 miles S.E. of Púna.

Loc. *Dāk bángalo* . . . . . 2,301 ft. Schl., Rob.

2, Pistor. 1855, Jan. 7, 5h P.M. *A.* 27·499; 67 8; 60. Bombay 29·817; 77 9; 61; — 69 ft.

No. 69. VÁLHEH, 18° 14′; 74° 9′, in the Dékhan, a village 7 miles S. of Jijúri.

Loc. *Level of the nálah* . . . . . 2,095 ft. Schl., El.

115 ft. below the level of the nálah at Daundáj; by aneroid.

No. 70. DOLÉSHVAR, or DAULÉSHVAR, 18° 25′; 74° 10′, in the Dékhan, 12 miles N.E. of Sássur, or Sásvar.

Loc. *Hill Pagoda* . . . . . 2,950 ft. Bomb. Cal.

No. 71. DAUNDÁJ, 18° 12′; 74° 11′, in the Dékhan, a village 5 miles S. of Jijúri.

Loc. *Level of a nálah* . . . . . 2,210 ft. Schl., El.

= 91 ft. below the dāk bángalo at Jijúri; by aneroid.

No. 72. NÍRA BRIDGE, 18° 5′; 74° 11′, in the Dékhan, a bángalo close to the Níra.

Loc. 1) *Dāk bángalo* . . . . . 1,708 ft. Schl., Rob.

2, Pistor. 1855, Jan. 8, 6h 30m A.M. *A.* 28·123; 53·2; 86. Bombay 29·871; 68 7; 87; — 25 ft.

Loc. 2) *Level of the Níra* . . . . . 1,628 ft. Schl., El.

= 80 ft. below the dāk bángalo at Níra; by aneroid.

No. 73. SÁLPI GHĀT, 17° 55′; 74° 11′, in the Dékhan, a pass between the Nira and the Krishna valleys.

Loc. 1) *Top of the ghat* . . . . . 2,478 ft. Schl., El

= 770 ft. above the dāk bángalo at Níra bridge.

Loc. 2) *Northern foot of the ghāt* . . . . . 2,265 ft. Schl., El

= 213 ft. below the Sálpi ghāt; by aneroid.

No. 74. RÍMATPUR, 17° 35′; 74° 11′, in the Dékhan, a village on the Kumandála nádi, S.E. of Satára.

Loc. *Entrance to a mosque* . . . . . 2,130 ft. Schl., Rob

2, Pistor. 1855, Jan. 11, 5h P.M. *A.* 27·748; 77 0; 70. Bombay 29·882; 75 4; 72. — 65 ft

No. 75. LÓNAND, 18° 2′; 74° 12′, in the Dékhan, a small village S. of the Nira, on one of its affluents.

Loc. *Level of the nálah* . . . . . 1,883 ft. Schl., El.

= 558 ft. below the dāk bángalo at Deúr; by aneroid.

No. 76. SÁLPI, 17° 57′; 74° 12′, in the Dékhan, a village below the northern foot of the Sálpi ghāt.

Loc. *Open place* . . . . . 2,224 ft. Schl., El

= 41 ft. below the northern foot of the Sálpi ghat; by aneroid.

No. 77. KÚNDAPUR. 18° 43′; 74° 12′, in the Dékhan, N. of the Bhíma.

Loc. *Dak bángalo* . . . . . 1,870 ft. Wils.

No. 78. BHOLÉSHVAR. 18° 26′·1; 74° 13′·6 ♁, in the Dékhan, 13 miles W.N.W. of Súpi.

Loc. *Hill Pagoda* . . . . . 2,781 ft. Bomb. Cal.

No. 79. NÁVI. 17° 33′; 74° 16′, in the Dékhan, S.S.E. of Rímatpur, at the foot of the Návi ghat.

Loc. 1) *Western foot of the ghāt* . . . . . 2,218 ft. Schl., Herm.

399 ft. below the Návi ghāt.

Loc. 2) *Top of the Návi ghat* . . . . . 2,617 „ Schl., Herm.

3, Oertling. 1855, Jan. 11. 7h A.M. *A.* 27·391; 54·3; 81. Bombay 29·966; 70 0; 85; + 50 ft.

No. 80. NAGCHÉRRI GHĀT, 17° 28′; 74° 16′, in the Dékhan, a pass W. of Pussasáuli.

Loc. 1) *Top of the ghat* . . . . . 2,645 ft. Schl., Herm.

264 ft. above the dāk bángalo at Pussasáuli; by aneroid.

„ 2) *Spring, on the eastern slopes of the ghāt* . . . . . 2,503 „ Schl., Herm

142 ft. below the Nagchérri ghat.

No. 81. VÁRRI, 17° 30′; 74° 18′, in the Dékhan, N. of Pussasáuli.

Loc. *Level of the Nándni* . . . . . 2,370 ft. El.

11 ft. below the dak bángalo at Pussasáuli; by aneroid.

No. 82. PUSSASÁULI, 17° 28′; 74° 19′, in the Dékhan, on the upper course of the Nándni, an affluent of the Krishna.

Loc. 1) *Dak bángalo* . . . . . 2,381 ft. Schl., Rob.

2, Pistor. 1855, Jan. 11, 4h P.M. *A.* 27 524; 77·2; 60. Bombay 29·902; 78·2; 62; — 66 ft.

„ 2) *Level of the Nándni* . . . . . 2,349 ft. Schl., Rob.

32 ft. below the dāk bángalo at Pussasáuli; by aneroid.

No. 83. GORIGÁŨ, 17° 27′; 74° 19′, in the Dékhan, S. of Pussasáuli.

Loc. *Level of the nálah* . . . . . 2,055 ft. Schl., Rob.

41 ft. below the dāk bángalo at Vángi; by aneroid.

No. 84. HINGENGÁŨ, 17° 24′; 74° 19′, in the Dékhan, S. of Pussasáuli.

Loc. *Level of the river* . . . . . 1,984 ft. Schl., Ad.

= 112 ft. below the dak bángalo at Vángi; by aneroid.

No. 85. BALÁURI, 17° 22′; 74° 19′, in the Dékhan, S. of Hingengáũ.

Loc. *Mean height of the village* . . . . . 2,025 ft. Schl., El.

= 71 ft. below the dāk bángalo at Vángi; by aneroid.

No. 86. RANJANGÁŨ, 18° 33′; 74° 21′, in the Dékhan, at the junction of the Múta and Bhima.

Loc. 1) *Level of the junction* . . . . . 1,713 ft. Buist.

„ 2) *Dāk bángalo* . . . . . 2,093 „ Buist.

No. 87. SIRÚR, 18° 49′; 74° 21′, in the Dékhan, near the right bank of the Gur, E. of Pábăl.

Loc. 1) *Dak bángalo* . . . . . 1,856 ft. Buist.

„ 2) *Level of the Gur* . . . . . 1,752 „ Wils.

No. 88. SÓHOLI, 17° 19′; 74° 22′, in the Dékhan, N.N.W. of Vángi.

Loc. *Mean height of the village* . . . . . 2,082 ft. Schl., Ad.

= 10 ft. below the dāk bángalo at Vángi; by aneroid.

No. 89. KÁRIPUR, 17° 17′; 74° 22′, in the Dékhan, S. of Sóholi.

Loc. *Mean height of the village* . . . . . 2,092 ft. Schl., Rob.

4 ft. below the dāk bángalo at Vángi; by aneroid.

No. 90. VÁNGI, 17° 14′; 74° 24′, in the Dékhan, S.E. of Pussassáuli, 3 miles W. of the Yérla.

Loc. *Dāk bángalo* . . . . . 2,096 ft. Schl., Rob.

2, Pistor. 1855, Jan. 12, 5h 30m P.M. *A.* 27·803; 70 9; 52. Bombay 29·913; 76 0; 55, – 52 ft

No. 91. RÁMAPUR, 17° 11′; 74° 27′, in the Dékhan, S.E. of Vángi, on the Yérla.

Loc. *Level of the Yérla* . . . . . 1,602 ft. Schl., Rob.

= 284 ft. below the dāk bángalo at Tasgáũ; by aneroid.

No. 92. PARNÉR HILL, 19° 0′; 74° 27′, in the Dékhan, 17 miles S.E. of Béla.

Loc. 1) *Top of the hill* . . . . . 3,261 ft. Bomb. Cal.

„ 2) *Level of the Hángi nálah.* . . . . . 2,274 „ Buist.

No. 93. PÁTÃS, 18° 25′; 74° 28′, in the Dékhan, S.W. of Përgáũ.

Loc. ½ *mile N. of the village* . . . . . 1,719 ft. Buist.

No. 94. BALÁURI, 17° 10′; 74° 28′, in the Dékhan, S.E. of Vángi, on the Yérla.

Loc. *Level of the Yérla* . . . . . 1,523 ft. Schl., Rob.

— 363 ft. below the dāk bángalo at Tasgáũ; by aneroid.

No. 95. ÁNDLI, 17° 9′; 74° 30′, in the Dékhan, on the right bank of the Yérla, S.E. of Vángi.

Loc. *Level of the Yérla* . . . . . 1,650 ft. Schl., El.

— 19 ft. above the level of the Yérla at Rájapur; by aneroid.

No. 96. BELGÁŨ (BELGAUM) 15° 50′; 74° 32′, in the Dékhan, a large station, 42 miles N.W. of Dharvár . . . . . 2,500 ft. Cull.

No. 97. RÁJAPUR, 17° 7′; 74° 33′, in the Dékhan, on the right bank of the Yérla, N. of Tasgáũ.

Loc. *Level of the Yérla* . . . . . 1,622 ft. Schl., El.

— 264 ft. below the dāk bángalo at Tasgáũ; by aneroid.

No. 98. DORÁLI, 17° 4′; 74° 35′, in the Dékhan, on the left bank of the Yérla, N.W. of Tasgáũ.

Loc. *Level of the Yérla* . . . . . 1,612 ft. Schl., El.

— 274 ft. below the dāk bángalo at Tasgáũ; by aneroid.

No. 99. TASGÁŨ, 17° 2′; 74° 36′, in the Dékhan, E. of the Yérla, on one of its affluents.

Loc. *Dāk bángalo* . . . . . 1,886 ft. Schl., Herm.

2, Pistor. 1855, Jan. 12, 6h P.M. *A.* 28·036; 69·4; 60. Bombay 29·945; 72·0; 66; — 38 ft.

No. 100. KÓMPTI, 16° 58′; 74° 40′, in the Dékhan, on an affluent of the Krishna, S.E. of Tasgáũ.

Loc. 1) *Mean height of the village* . . . . . 2,280 ft. Schl., El.

= 61 ft. below the dharamsála at Mălgáũ; by aneroid.

„ 2) *Rising ground near Kómpti, forming the watershed between two nálahs* . . . . . 2,305 ft. Schl., El.

= 25 ft. above the village of Kómpti; by aneroid.

No. 101. CHAMBARGÚNDA, 18° 35′; 74° 42′, in the Dékhan, on the Sarsútti (Sarsaváti).

Loc. *Dák bángalo* . . . . . 1,741 ft. Buist.

No. 102. KĂLÁMBI, 16° 55′; 74° 43′, in the Dékhan, N. of Mălgáũ.

Loc. *Mean height of the village* . . . . . 2,371 ft. Schl., El.

= 30 ft. above the dharamsála at Mălgáũ.

No. 103. MĂLGÁŨ, 16° 53′; 74° 43′, in the Dékhan, E. of the Krishna, on one of its affluents.

Loc. *Dharamsála* . . . . . 2,341 ft. Schl., Ad.

2, Pistor. 1855, Jan. 14, 5h P.M. *A.* 27·579; 77·4; 52. Bombay 29·926; 76 1; 57. — 71 ft.

No. 104. PERGÁŨ, 18° 31′; 74° 43′, in the Dékhan, on the left bank of the Bhíma.

Loc. *Level of the river* . . . . . 1,580 ft. Buist.

No. 105. MALEVÁRI, 16° 51′; 74° 45′, in the Dékhan, N.W. of Ánapur.

Loc. *Mean height of the village* . . . . . 1,675 ft. Schl., El.

= 90 ft. below the tank at Ánapur; by aneroid.

No. 106. VÁNDIU, 18° 46′·5; 74° 45′·1 ✝, in the Dékhan, 22 miles S. of Ahmednágger.

Loc. *Hill Pagoda* . . . . . 2,775 ft. Bomb. Cal.

No. 107. AHMEDNÁGGER, 19° 6′; 74° 46′, in the Dékhan, a large station, 71 miles N.E. of Púna.

Loc. 1) *Dák bángalo* . . . . . 2,133 ft. Buist.

„ 2) *Floor of Salabát Khan's tomb* . . . . . 2,919 „ Buist.

Loc. 3) *Happy Valley bángalo* . . . . . 2,193 ft. Buist.
„ 4) *Undefined* . . . . . 2,143 „ Scott.

No. 108. KHAN PISÚRI HILL, 18° 44′; 74° 47′, in the Dékhan, 24 miles S. of Ahmednágger . . . . . 2,765 ft. Bomb. Cal.

No. 109. ÁRUG, 16° 48′; 74° 48′, in the Dékhan, N. of Ánapur.
Loc. *Mean height of the village* . . . . . 1,714 ft. Schl., El.
51 ft. below the tank at Ánapur; by aneroid.

No. 110. MÁNGSOLI, 16° 45′; 74° 51′, in the Dékhan, N. of Ánapur.
Loc. *Mean height of the village* . . . . . 1,480 ft. Schl., El.
285 ft. below the tank at Ánapur; by aneroid.

No. 111. KADAPUNABÉTTA, 12° 55′·6; 74° 51′·6 ⏚, in Málabar, near Mangalúr.
Loc. *Tower Station* . . . . . 318 ft. G.T.S.

No. 112. SÚLKI, 17° 45′·7; 74° 52′·5 ⏚, in the Dékhan, 12 miles S.W. of Aklúj.
Loc. *Pagoda on the hill* . . . . . 2,363 ft. Bomb. Cal.

No. 113. ÁNAPUR, 16° 41′; 74° 54′, in the Dékhan, near the left bank of the Krishna.
Loc. 1) *Level of a large tank* . . . . . 1,765 ft. Schl., Ad.
2, Pistor. 1855, Jan. 15, 5h P.M. *A.* 28 143; 77·5; 49. Bombay 29 906; 78·1; 51. — 35 ft. Loc. Corr. — 6 ft.
Loc. 2) *Level of the Krishna* . . . . . 1,673 ft. Schl., Ad.
— 92 ft. below the tank at Ánapur; by aneroid.

No. 114. RÁSIN, 18° 26′·1; 74° 54′·4 ⏚, in the Dékhan, on the Náuni pálah, an affluent of the Bhíma.
Loc. *Pagoda* . . . . . 1,706 ft. Buist.

No. 115. MÍJAR, 13° 3′·4; 74° 54′·8 ⏚, in Málabar, 12 miles N.E. of Mangalúr.
Loc. *Hill Station* . . . . . 652 ft. G.T.S.

No. 116. KHÁMLAPUR, 16° 37′; 74° 56′, in the Dékhan, on the right bank of the Krishna.
Loc. *Mean height of the village* . . . . . 1,865 ft. Schl., El.
+ 100 ft. above the tank at Ánapur; by aneroid.

No. 117. ALSÚNDA, 18° 29′·2; 74° 59′·8 ☩, in the Dékhan, 2 miles N.E. of Khórti.

Loc. *Top of the hill* . . . . . 2,178 ft. Bomb. Cal.

No. 118. DHARVÁR, 15° 27′; 75° 1′, in Maissúr, 70 miles E. of Góa.

Loc. *Undefined* . . . . . 2,423 ft. Cull.

No. 119. BÓRI HILL, 17° 58′; 75° 2′, in the Dékhan, W. of the Bhíma.

Loc. *Top of the hill* . . . . . 2,014 ft. Bomb. Cal.

No. 120. TÉRDÁL, 16° 30′; 75° 4′, in the Dékhan, S. of the Krishna, on one of its affluents.

Loc. *Dharamsála* . . . . . 1,112 ft. Schl. Rob.

2, Pistor. 1855, Jan. 16, 8h P.M. *A.* 28·130; 72 7; 75. Bombay 29·918; 71 2; 69.

No. 121. CHÍMER, 16° 36′; 75° 7′, in the Dékhan, N.W. of Múdhál.

Loc. *Mean height of the village* . . . . . 1,582 ft. Schl, El.

= 215 ft. below the dharamsála at Múdhál; by aneroid.

No. 122. BELGÁLLI, 16° 21′; 75° 10′, in the Dékhan, on an affluent of the Gatpárba, W. of Múdhál.

Loc. *Mean height of the village* . . . . . 1,655 ft. Schl., El.

= 142 ft. below the dharamsála at Múdhál; by aneroid.

No. 123. TAIMBÚRNI, 18° 1′; 75° 12′, in the Dékhan, E. of the Bhíma.

Loc. *Mean height of the village* . . . . . 1,475 ft. Bust.

No. 124. MÓGHULPUR, 16° 21′; 75° 13′, in the Dékhan, on an affluent of the Gátpárba, N.W. of Múdhál.

Loc. *Mean height of the village* . . . . . 1,760 ft. Schl., El.

= 37 ft. below the dharamsála at Múdhál; by aneroid.

No. 125. MÚDHÁL, 16° 20′; 75° 18′, in the Dékhan, on the left bank of the Gátpárba.

Loc. 1) *Dharamsála* . . . . . 1,797 ft. Schl., Rob.

2, Pistor. 1855, Jan. 17, 8h P.M. *A.* 28 174; 67·8; 70. Bombay 29 939; 70·2; 74.

Loc. 2) *Level of the Gátpárba* . . . . . 1,782 ft. Schl., El.

= 15 ft. below the dharamsála at Múdhál; by aneroid.

No. 126. KEM, 18° 11′·2; 75° 15′·4 ♁, in the Dékhan, W. of the Sénna.

Loc. 1) *Hill Pagoda, 2 miles W. of Kēm* . . . . . 1,956 ft. Bomb. Cal.

„ 2) *Top of a hill, 1½ mile from Kēm* . . . . . 1,963 ft. Bomb. Cal.

No. 127. PÁNDERPUR, 17° 41′; 75° 21′, in the Dékhan, on the right bank of the Bhíma.

Loc. *Level of the river* . . . . . 1,378 ft. Buist.

No. 128. YERHÁLLI, 16° 18′; 75° 21′, in the Dékhan, 2 miles N. of the Gătpárba, S.E. of Múdhál.

Loc. *Mean height of the village* . . . . . 1,551 ft. Schl., El.

— 193 ft. below the dak bángalo at Kăládghi; by aneroid.

No. 129. BALLALAIDRÚG, *H. S.*, 13° 7′·9; 75° 23′·6 ♁, in Maissúr, between Bangavádi and Armáni Tálgur . . . . . 4,999 ft. G.T.S.

No. 130. KÓP, 16° 16′; 75° 28′, in the Dékhan, on the left side of the Gătpárba.

Loc. *Level of the Gătpárba* . . . . . 1,670 ft. Schl., El.

74 ft. below the dāk bángalo at Kăládghi; by aneroid.

No. 131. KÁLÁDGHI, 16° 12′·9; 75° 29′·9 ♁, in the Dékhan, a large military station, in the district of Belgáum.

Loc. 1) *Dak bángalo* . . . . . 1,744 ft. Schl., Rob.

The detail of the observations upon which this result is based is given p. 57.

Loc. 2) *Level of the Gătpárba* . . . . . 1,653 ft. Schl., El.

— 91 ft. below the dāk bángalo at Kăládghi; by aneroid.

No. 132. SHALIGHÉRRI, 16° 9′; 75° 32′, in the Dékhan, S. of Kăládghi.

Loc. *Plain at the foot of the hills* . . . . . 1,686 ft. Schl., El.

— 58 ft. below the dak bángalo at Kăládghi; by aneroid.

No. 133. KĂRKĂLMÁTI, 16° 8′; 75° 36′, in the Dékhan, N. of Kăttighérri, in a plain bordered on the north by hills.

Loc. *Tank in the plain at Kăttighérri* . . . . . 1,858 ft. Schl., El.

122 ft. below the watershed between the Mălpárba and Gătpárba.

No. 134. KÄTTIGHÉRRI, 16° 5′; 75° 39′, in the Dékhan, N. of Badámi.

Loc. *Watershed between the Mälpárba and Gätpárba* . . . . . 1,980 ft. Schl., El.

= 236 ft. above the dāk bángalo at Käládghi; by aneroid.

No; 135. MÓHOL, 17° 49′; 75° 39′, in the Dékhan, E. of Áshti.

Loc. *Mussälman's tomb, N. of the village* . . . . . 1,353 ft. Buist.

No. 136. ÁNGREGI, 16° 4′; 75° 41′, in the Dékhan, S.E. of Käládghi.

Loc. *Mean height of the village* . . . . . 1,824 ft. Schl., Ad.

2, Pistor. 1855, Jan. 20, 7h P.M. *A.* 28 107; 78·6; 82. Bombay 29·902; 75 4; 85. — 18 ft.

No. 137. BADÁMI, 15° 55′; 75° 42′, in the Dékhan, S.S.E. of Käládghi.

Loc. *Foot of the fort* . . . . . 1,646 ft. Schl., El.

= 334 ft. below the watershed at Kättighérri; by aneroid.

No. 138. TELESKÚDI, or TOLACHGÓDI, 15° 52′; 75° 44′, in the Dékhan, on the left bank of the Mälpárba.

Loc. *Level of the Mälpárba* . . . . . 1,676 ft. Schl., Herm.

2, Pistor. 1855, Jan. 21, 6h P.M. *A.* 28·214; 78·8; 80. Bombay 29 871; 78·7; 83. — 33 ft.

No. 139. DÁMAL, 15° 17′; 75° 47′, in the Dékhan, N. of the Tungabúdra.

Loc. *Mean height of the village* . . . . . 2,024 ft. Cull.

No. 140. SANTIGHÉRRI, 15° 49′; 75° 50′, in Maissúr, N.W. of Gädjäntergárh.

Loc. *Foot of the hills* . . . . . 1,620 ft. Schl., El.

= 30 ft. below the plain at Musighérri.

No. 141. MUSIGHÉRRI, 15° 48′; 75° 53′, in Maissúr, N.W. of Gädjäntergárh.

Loc. *Mean height of the plain* . . . . . 1,650 ft. Schl., El.

= 133 ft. below the foot of the Díndur hills; by aneroid.

No. 142. DÍNDUR, 15° 46′; 75° 55′, in Maissúr, N.W. of Gädjantergárh.

Loc. *Foot of the hills* . . . . . 1,783 ft. Schl., El.

= 213 ft. below the Gädjäntergárh fort; by aneroid.

No. 143. Gádjántergárh, 15° 44′; 75° 56′, in Maissúr, a large village with a fort.

Loc. *Plain at the foot of the fort* . . . . . 1,996 ft. Schl., Herm.

2, Pistor. 1855, Jan. 22, 8h P.M. *A.* 29·957; 72 7; 75. Bombay 29·905; 77·7; 78.

No. 144. Hámpságer, 15° 9′; 76° 4′, in Maissúr, on the right bank of the Tungabúdra.

Loc. *Level of the Tungabúdra* . . . . . 1,647 ft. Cull.

No. 145. Daisanigúda, 13° 15′·8; 76° 7′·5 ✝, in Maissúr, near Kodehálli.

Loc. *Hill Station* . . . . . 3,804 ft. G. T. S.

No. 146. Biraldíni, 15° 40′; 76° 12′, in Maissúr, E. of Gádjantergárh.

Loc. *Mean height of the surrounding plain* . . . . . 2,113 ft. Schl., Ad.

2, Pistor. 1855, Jan. 23. *B* = Bombay; *C* = Madras.

Jan. 23, 6h P.M. *A* 27 839; 73 4; 79. *B.* 29·905; 79 7; 81. — 41 = 2,083 ft. *C.* 29 989; 77 0; 69. — 43 = 2,143 ft.

No. 147. Upáldíni, 15° 39′; 76° 14′, in Maissúr, W. of Kanakghérri.

Loc. *Mean height of the plain* . . . . . 1,947 ft. Schl., Rob.

2, Pistor. 1855, Jan. 24, 5h 30m A.M. *A.* 28 056; 59 7; 80. Bombay 29·974; 74·2; 84; + 27 ft.

No. 148. Kanakghérri, 15° 34′; 76° 26′, in Maissúr, a large place with many temples now in ruins.

Loc. *Mean height of the plain* . . . . . 1,549 ft. Schl., Ad.

2, Pistor. 1855, Jan. 24, 8h P.M. *A.* 28 457; 71 8, 75. Bombay 29·979; 76·5; 77.

No. 149. Ámrapur, 20° 25′; 76° 28′, in the Dékhan, S.W. of Ákola.

Loc. *Level of the Màn* . . . . . 1,674 ft. Cull.

No. 150. Ramanmálle, 15° 7′; 76° 29′, in Maissúr, W. of Bellári.

Loc. *Mean height of the village* . . . . . 3,198 ft. Scott.

No. 151. Súndur, 15° 5′; 76° 34′, in Maissúr, 24 miles W. of Bellári.

Loc. *Level of a nálah* . . . . . 1,900 ft. Cull.

No. 152. Komarsámi, 15° 1′; 76° 35′, in Maissúr, a pagoda W. of Hiraháll.

Loc. 1) *Undefined* . . . . . 3,050 ft. Cull.

„ 2) *Peak near the pagoda* . . . . . 3,400 „ Cull.

No. 153. TUMRAGÚDI, 14° 57′; 76° 36′, in Maissúr, E. of Komarsámi.

Loc. *Mean height of the village* . . . . . ab. 2,500 ft. Cull.

No. 154. KÁMPLI, 15° 24′; 76° 37′, in Maissúr, on the right bank of the Tungabúdra, N.W. of Bellári.

Loc. 1) *Spring near the village* . . . . . 1,286 ft. Schl., Ad.

2, Pistor. 1855, Jan. 25, 8h 45m P.M. *A.* 28·669; 75·7; 56. Bombay 29·962; 76·6; 59. Loc. Corr. − 33 ft.

Loc. 2) *Level of the Tungabúdra* . . . . . 1,202 ft. Schl., Ad.

= 84 ft. below the spring near Kámpli; by aneroid.

No. 155. SUGANHÁLLI, 15° 17′; 76° 42′, in Maissúr, on the Nári, W. of Bellári.

Loc. *Level of the Nári* . . . . . 1,260 ft. Schl., El.

= 278 ft. below the dāk bángalo at Bellári.

No. 156. ANTAPURÁM, 15° 6′; 76° 43′, in Maissúr, W.S.W. of Bellári.

Loc. *Mean height of the village* . . . . . 1,800 ft. Cull

No. 157. BOIGÁLLA, or HOMSVASHENDRÚG, 14° 59′; 76° 44′, in Maissúr, W. of Hirahálli.

Loc. *Mean height of the village* . . . . . 2,300 ft. Cull.

No. 158. KUDATÁNNI, 15° 11′; 76° 46′, in Maissúr, 10 miles W. of Bellári.

Loc. *Dāk bángalo* . . . . . 1,561 ft. Schl., Herm.

2, Pistor. 1855, Jan. 26, 7h P.M. *A.* 28 429; 75·4; 75. Madras 29·981; 77·0; 79. − 15 ft.

No. 159. HIRAHÁLL, 15° 1′; 76° 51′, in Maissúr, W.N.W. of Honur.

Loc. *Level of the nálah* . . . . . ab. 1,800 ft. Cull

No. 160. BELLÁRI, 15° 8′·9; 76° 53′·8 ♁, in Maissúr, a large station W. of the Hágri.

Loc. 1) *Dāk bángalo* . . . . . 1,538 ft. Schl., Ad

„ *Undefined* . . . . . 1,575 „ Cull.

2, Pistor. 1855, Jan. 27, 5 h 45 m P.M. *A.* 28·493; 81·0. 24. Madras 30·040; 77 1, 70. — 31 = 1,539 ft.

„ „ 29, 7 15 „ „ 28 508; 80·8. 36. „ 30·020; 78·3; 63. — 0 = 1,536 „

Loc. 2) *Highest point near the flag-staff in the upper fort* . . 2,018 ft. Schl., Ad.

1, Greiner. 1855, Jan. 29, 7h 15m A.M. *A.* 28 123; 67 1. Bellári 28 603; 68 0.

No. 161. HĂLKÚNDI, 15° 4′; 76° 54′, in Maissúr, S. of Bellári.

Loc. *Level of a nálah* . . . . . 1,650 ft. Cull.

No. 162. ARSÁNDI, 15° 6′; 77° 3′, in Maissúr, on the right bank of the Hágri, E. of Bellári.

Loc. *Level of the Hágri* . . . . . 1,400 ft. Cull.

No. 163. BĂLLÚR, 15° 25′; 77° 3′, in Maissúr, on the Hágri, N.N.E. of Bellári.

Loc. *Level of the Hágri* . . . . . 1,278 ft. Cull.

No. 164. HONÚR, or HONÁUR, 14° 54′; 77° 6′, in Maissúr, 2 miles E. of the Hágri.

Loc. *Mean height of the plain* . . . . . 1,627 ft. Schl., Herm.

1, Greiner. 1855, Jan. 31, 6^h 15^m P.M. *A.* 28 453; 77 0; 76. Madras 30·081; 78 1; 67. — 24 ft.

No. 165. CHELRAGÚRKI, 15° 7′; 77° 9′, in Maissúr, E. of Gădabál.

Loc. *Mean height of the village* . . . . . 1,450 ft. Cull.

No. 166. ARRAKARÁI, 15° 24′·6; 77° 10′·2 ♁, in Maissúr, a hill N.E. of Bellári.

Loc. *Hill Station* . . . . . 2,202 ft. G. T. S.

No. 167. GĂDDAKALGÚDA, *H. S.*, 15° 7′·3; 77° 13′·4 ♁, in Maissúr, a pagoda on a hill, about half the distance between Gúti and Bellári . . . . . 1,918 ft. G. T. S.

Loc. 2) *Dák bángalo* . . . . . 1,477 „ Schl., Ad.

„ *Undefined* . . . . . 1,420 „ Cull.

2, Pistor. 1855, Jan. 31, 5^h 15^m P.M. *A.* 28·587; 81·0; 50. Madras 30·073; 78 4; 65. — 34 ft.

No. 168. GÓLLA, 14° 36′; 77° 14′, in Maissúr, near the watershed between the Pennár and Hágri.

Loc. *Watershed between the Pennár and Hágri* . . . . . 1,887 ft. Schl., Herm.

= 120 ft. above the tank at Pairúr.

No. 169. ADHVANIDRÚG (ADÓNI), 15° 38′·9; 77° 15′·8 ♁, in Maissúr, S. of the Tungabúdra.

Loc. 1) *Hill Station* . . . . . 2,103 ft. G. T. S.

„ 2) *Adhváni* (*Adóni*) *village* . . . . . 1,395 „ Cull.

No. 170. PAUGARDRÚG, *H. S.*, 14° 6′·3; 77° 15′·8 ⏚, in Maissúr, northern boundary of Maissúr . . . . . 3,073 ft. G. T. S.

No. 171. BAILÍPI, 13° 39′·1; 77° 15′·8 ⏚, in Maissúr, 5 miles E. of Mádghérri.
Loc. *Hill Station* . . . . . 2,761 ft. G. T. S.

No. 172. UDERPIDRÚG, *H. S.*, 14° 49′·9; 77° 19′·8 ⏚, in Maissúr, a hill fort on the road from Hándi Anántapur to Bellári . . . . . 1,852 ft. G. T. S.

No. 173. MALLIABÁD, 16° 8′·2; 77° 20′·2 ⏚, in Maissúr, 4 miles S. of Raichúr.
Loc. *Hill Station* . . . . . 1,844 ft. G. T. S.

No. 174. KONAKÚNDLU, 15° 6′·7; 77° 21′·2 ⏚, in Maissúr, between Gúti and Bellári.
Loc. *Hill Station* . . . . . 2,036 ft. G. T. S.

No. 175. PAIRÚR, 14° 21′; 77° 22′, in Maissúr, E. of the Pennár, in a large plain.
Loc. *Tank in the plain* . . . . . 1,767 ft. Schl., Rob.
1, Greiner. 1855, Feb. 2, 6h P.M. *A.* 28·272; 78·1; 39. Madras 30·052; 76·0; 74. — 35 ft.

No. 176. MADÁVARAM, 15° 56; 77° 22′, in Maissúr, on the Tungabúdra.
Loc. *Level of the Tungabúdra* . . . . . 1,089 ft. Cull.

No. 177. RAICHÚR, 16° 11′; 77° 22′, in the Dékhan, 6 miles S. of the Bhíma.
Loc. *Undefined* . . . . . 1,237 ft. Scott.

No. 178. KOTAPÍLLI, 16° 28′·5; 77° 22′·0 ⏚, in Maissúr, near Máktál.
Loc. *Hill Station* . . . . . 1,657 ft. G. T. S.

No. 179. GUNDUKÁL, 15° 9′; 77° 23′, in Maissúr, on the watershed between the Hágri and Gúti.
Loc. *Dák bángalo* . . . . . 1,424 ft. Schl., Ad.
„ *Undefined* . . . . . 1,500 „ Cull.
2, Pistor. 1855, Feb. 1, 6h A.M. *A.* 28·654; 60·4; 61. Bombay 30·048; 68·8; 81. + 40 ft.

No. 180. KONDAPÍLLI, *H. S.*, 14° 31′·9; 77° 23′·3 ⏚, in Maissúr, a hill on a range running north and south . . . . . 2,282 ft. G. T. S.

No. 181. BOMASÁNDRAM, 13° 59′·7; 77° 27′·8 ♁, in Maissúr, 2 miles E. of the Pennár.

Loc. *Hill Station* . . . . . 2,038 ft. G. T. S.

No. 182. PAUTÁKA CHÉRRU, 15° 9′; 77° 31′, in Maissúr, 8 miles W. of Gúti.

Loc. 1) *Dak bángalo* . . . . . 1,300 ft. Schl., Ad.

2, Pistor. 1855, Feb. 1, 7h 15m P.M. *A.* 28·796; 76·8; 35. Madras 30·097; 75·4; 67. — 10 ft.

Loc. 2) *Tank* . . . . . 1,248 ft. Schl., El.

= 52 ft. below the dāk bángalo; by aneroid.

No. 183. KOGHÍRA, 14° 7′; 77° 31′, in Maissúr, E. of the Pennár, in an open plain.

Loc. 1) *Dāk bángalo* . . . . . 2,001 ft. Schl., Rob.

1, Greiner.	1855, Feb. 3,	4h 0m P.M.	*A.* 28·008; 84·0; 24.	Madras	30·022; 79·3; 66.	— 61 = 1,997.
	„ „	4 30 „	„ 28 004; 82·8; 26.	„	30·013; 79·1; 66.	— 61 = 1,997.
	„ „	5 0 „	„ 27·993; 81 9; 28.	„	30·012; 78 4; 70.	— 61 = 2,008.

Loc. 2) *Large tank* . . . . . 1,984 ft. Schl., Rob.

= 17 ft. below the dāk bángalo; directly measured.

No. 184. PÁUMDI, 14° 57′·9; 77° 34′·0 ♁, in Maissúr, 2 miles N. of the Pínna.

Loc. *Hill Station* . . . . . 1,762 ft. G. T. S.

No. 185. PALLIKÓNDA, or POLIKÓNDA, *H. S.*, 15° 28′·2; 77° 34′·9 ♁, in Maissúr, 4 miles S. of Davankónda . . . . . 1,891 ft. G. T. S.

No. 186. URAKÓNDA, 14° 15′·9; 77° 35′·5 ♁, in Maissúr, between Gúti and Bángalur.

Loc. *Hill Station* . . . . . 2,223 ft. G. T. S.

No. 187. KOELKÓNDA, 15° 19′·3; 77° 35′·6 ♁, in Maissúr, 14 miles N. of Gúti.

Loc. *Hill Station* . . . . . 2,042 ft. G. T. S.

No. 188. DAVERKÓNDA, 14° 40′·6; 77° 38′·0 ♁, in Maissúr, 3 miles E. of Hándi Anántapur.

Loc. *Hill Station* . . . . . 1,876 ft. G. T. S.

No. 189. GÚTI, 15° 6′·9; 77° 38′·1 ♁, in Maissúr.

Loc. 1) *Hill Station* . . . . . 2,171 ft. G. T. S.

„ 2) *Base of Gúti rock* . . . . . 1,180 „ Schl., Ad.

2, Pistor. 1855, Feb. 2, 6h 10m A.M. *A.* 28·910; 63 9; 40. Bombay 30 060; 70 0; 60. + 31 ft.

Loc. 3) *Tank at the Quarter Guard* . . . . . 1,115 ft.
= 65 ft. below the base of the Gúti rock; by aneroid.
Loc. 4) *Undefined* . . . . . 1,260 ft. Scott.

No. 190. YERRAKÓNDA, 13° 54′·9; 77° 38′·2 ⊥, in Maissúr, 12 miles S.S.E. of Penkónda.
Loc. *Hill Station* . . . . . 2,848 ft. G. T. S.

No. 191. DARÚR, 16° 13′·7; 77° 38′·7 ⊥, in Maissúr, 3 miles W. of the Kríshna.
Loc. *Hill Station* . . . . . 1,883 ft. G. T. S.

No. 192. KERRÁI BELLAGÁL, *H. S.*, 15° 48′·8; 77° 40′·0 ⊥, in Maissúr, 7 miles S. of the Tungabúdra . . . . . 1,498 ft. G. T. S.

No. 193. PALSAMÚDRAM, 13° 57′; 77° 41′, in Maissúr, 4 miles W. of the Chíttra.
Loc. 1) *Dák bángalo* . . . . . 2,279 ft. Schl., Herm.
1, Greiner. 1855, Feb. 4, 6h P.M. *A.* 27 741; 77 9; 39. Madras 30·018; 77·2; 74. — 46 ft.
Loc. 2) *Large tank* . . . . . 2,269 ft. Schl., Herm.
= 10 ft. below the dák bángalo; directly measured.
„ 3) *Watershed of the Chíttra and Pennár* . . . . . 2,363 „ Schl., Herm
84 ft. above the dák bángalo; by aneroid.

No. 194. KODÚR PASS, 13° 54′; 77° 43′, in Maissúr, between Paulsamúdram and Kodúr.
Loc. *Top of the pass* . . . . . 2,401 ft. Schl., Herm.
= 28 ft. above the dak bángalo at Gäntvärpílli; by aneroid.

No. 195. GÄNTVÄRPÍLLI, 13° 50′; 77° 44′, in Maissúr, near the Chíttra, in an open plain.
Loc. 1) *Dak bángalo* . . . . . 2,373 ft. Schl., Rob.
1, Greiner. 1855, Feb. 5, 11h 50m A.M. *A.* 27·682; 82·6; 42. Madras 30·058; 80·2; 67. — 72 ft
Loc. 2) *Level of the Chíttra* . . . . . 2,312 ft.
= 61 ft. below the dák bángalo at Gäntvärpílli; by aneroid.

No. 196. PAIPÍLLI, 15° 14′; 77° 45′, in Maissúr, 10 miles N.E. of Gúti.
Loc. *Dharamsála* . . . . . 1,716 ft. Schl., Ad.
„ *ditto* . . . . . 1,750 „ Cull.
2, Pistor. 1855, Feb. 2, 5h 30m P.M. *A.* 28 319; 82·4; 45. Madras 30 048; 77 0; 70. — 43 ft.

No. 197. Jeldurgáŭ, 15° 17′; 77° 54′, in Maissúr, E. of Paipílli.

Loc. *Undefined* . . . . . 1,300 ft. Cull.

No. 198. Garaldíni, 15° 19′; 77° 59′, in Maissúr, 26 miles N.N.E. of Gúti.

Loc. *Mean height of the plain* . . . . . 1,096 ft. Schl., Ad.

2, Pistor. 1855, Feb. 4, 3h 45m P.M. *A.* 28·890; 88·2; 37. Palsamúdram 27·715; 82·1. + 37 ft.

No. 199. Paspálla, 15° 20′; 78° 2′, in Maissúr, W. of Banaganpílli.

Loc. *Undefined* . . . . . ab. 1,100 ft. Cull.

No. 200. Kárnúl, 15° 50′; 78° 2′, in the Dékhan, 90 miles N.E. of Bellári.

Loc. *Undefined* . . . . . ab. 900 ft. Scott.

No. 201. Banaganpílli, 15° 19′; 78° 14′, in Maissúr, on the left bank of the Súru, an affluent of the Kundár.

Loc. *Dharamsála* . . . . . 607 ft. Schl., Ad.

„ *Undefined* . . . . . ab. 800 „ Cull.

2, Pistor. 1855, Feb. 5, 8h 30m P.M. *A.* 29·347; 74·3; 55. Bombay 29·990; 74·7; 83 + 6 ft.

No. 202. Injáru, 15° 5′; 78° 25′, in Maissúr, on the left bank of the Kundár, S. of Banaganpílli.

Loc. *Mean height of the Kundár valley* . . . . . 542 ft. Schl., Ad.

2, Pistor. 1856, Feb. 6. *B* = Madras; *C* = Chóta Bálapur.

7h 15m P.M. *A.* 29·603; 80 2; 48. *B.* 30·136; 77 3; 76. + 12 = 556 ft. *C.* 27·140; 70·8. + 19 = 527 ft.

No. 203. Jilála, 15° 21′; 78° 29′, in Maissúr, E. of Banaganpílli.

Loc. *Undefined* . . . . . ab. 760 ft. Cull.

No. 204. Chóta Shettipílli, 14° 50′; 78° 32′, in Maissúr, a small village between the Kundár and Pennár.

Loc. *Large tank* . . . . . 510 ft. Schl., Ad.

2, Pistor. 1855, Feb. 7, 6h 40m P.M. *A.* 29·623; 78·4; 47. Madras 30·117; 76·7; 76; + 5 ft.

No. 205. Madapúram, 15° 24′; 78° 38′, in Maissúr, N.E. of Banaganpílli.

Loc. *Undefined* . . . . . 812 ft. Cull.

No. 206. APPIAPÍLLI, 14° 36′; 78° 41′, in Maissúr, on the left bank of the Papágni, near its confluence with the Pennár.

Loc. *High water level of the Papágni* . . . . . 492 ft. Schl., Ad.

2, Pistor. 1855, Feb. 8, $6^h\ 45^m$ P.M. *A.* 29·556; 79·2; 46. Madras 30·098; 77·0; 67. + 6 ft.

No. 207. MANDIGUNÁMA GHÁT, 15° 25′; 78° 47′, in Maissúr, E. of the diamond mines.

Loc. 1) *Top of the ghát* . . . . . 1,040 ft. Cull.

„ 2) *Nálla Málla peak near the ghát* . . . . . 1,700 „ Cull.

No. 208. CHINÚR, 14° 33′; 78° 48′, in Maissúr, on the right bank of the Pennár, 4 miles N. of Kádapa.

Loc. *Level of the Pennár* . . . . . 460 ft. Cull.

No. 209. KÁDAPA, 14° 28′·8; 78° 48′·4 ⏚, in Maissúr, a large place 4 miles W. of the Pennár.

Loc. *Mean height of the plain* . . . . . 364 ft. Schl., Ad.

„ *Undefined* . . . . . ab. 490 „ Cull.

2, Pistor. 1855, Feb. 9, $8^h\ 25^m$ P.M. *A.* 29·623; 77 4; 46. Bombay 29·940; 76·3; 78; + 9 ft.

No. 210. KISTNAMCHITTIPÍLLI, 15° 23′; 78° 53′, in Maissúr, W. of Gúdalur.

Loc. *Undefined* . . . . . ab. 900 ft. Cull.

No 211. PORIMÁMLA, 15° 0′·8; 78° 58′·5 ⏚, in Maissúr, N. of Bádvál, with a fort.

Loc. *Undefined* . . . . . ab. 660 ft. Cull.

No. 212. IDAMKÁL, 15° 16′; 79° 0′, in Maissúr, S.E. of Gúdalur.

Loc. *Undefined* . . . . . ab 900 ft. Cull.

No. 213. VONTIMÉTTA, or ONTIMÍTTA, 14° 24′; 79° 2′, in Maissúr, 4 miles S. of the Pennár, in an open plain.

Loc. 1) *Dák bángalo* . . . . . 348 ft. Schl., Ad.

„ *Undefined* . . . . . 520 „ Cull.

2, Pistor. 1855, Feb. 10, $6^h\ 35^m$ A.M. *A.* 29·646; 77·7; 43. Bombay 29 957; 71 3; 72. + 10 ft.

Loc. 2) *Level of the Pennár* . . . . . 325 ft..

No. 214. ALINÁGGER, 15° 10′; 79° 2′, in Maissúr, E. of Oyalváda.

Loc. *Mean height of the village* . . . . . ab. 870 ft. Cull.

No. 215. BODIMÁLLA, 13° 12′·7; 79° 2′·2 ☥, in the Karnátik, 2 miles W. of Chittúr.

Loc. *Hill Station* . . . . . 1,647 ft. G. T. S.

No. 216. ALCHAMAPÁT GHÁT, 14° 21′; 79° 4′, in Maissúr, 1 mile N. of Alchamapát.

Loc. *Top of the ghát* . . . . . 359 ft. Schl., Ad.

2, Pistor. 1855, Feb. 11, 5h 23m A.M. *A.* 29·607; 63 1; 64. Bombay 29·931; 72·1; 80; + 12 ft.

No. 217. NÁNDALUR, 14° 17′; 79° 6′, in Maissúr, on the left bank of the Cheár.

Loc. *Sandy plain of the Cheár* . . . . . 470 ft. Schl., Ad.

2, Pistor. 1855, Feb. 11, 7h P.M. *A.* 29·595; 73 0; 66. Madras 30·053; 75·7; 71. + 2 ft.

No. 218. POLIAMPÉTTA, 14° 6′; 79° 13′, in Maissúr, on the left bank of the Polúnga.

Loc. *Undefined* . . . . . 540 ft. Cull.

No. 219. CHÓTA ORAMPÓD, 14° 2′; 79° 17′, in Maissúr, a small village.

Loc. *Large tank* . . . . . 586 ft. Schl., Ad.

2, Pistor. 1855, Feb. 12. *B* = Madras; *C* = Natarampílli.

4h 20m P.M. *A.* 29 382; 81·0; 42. *B.* 29·966; 79 0; 64. — 15 = 584 ft. *C.* 28·508; 80 4. + 23 = 587 ft.

No. 220. KODÚR, 13° 57′; 79° 21′, in the Karnátik, on an affluent of the Cheár.

Loc. *Dak bángalo* . . . . . 636 ft. Schl., Ad.

„ *Undefined* . . . . . 600 „ Cull.

2, Pistor. 1855, Feb. 13, 5h 15m A.M. *A.* 29 414; 61·5; 60. Ambúr 28 993; 62·0. — 16 ft.

No. 221. TIRUPÁTI, or TRIPÉTTI, 13° 27′; 79° 26′, in the Karnátik, 4 miles N. of the Surnamúke.

Loc. *Level of the plain* . . . . . 507 ft. Schl., Ad.

2, Pistor. 1855, Feb. 14. *B* = Madras; *C* = Polikónda (Pallikónda).

4h 12m P.M. *A.* 29 438; 84·7; 33. *B.* 29·944; 78·9; 63. — 14 = 510 ft. *C.* 29·087; 82·6. + 10 = 504 ft.

No. 222. BALBAPÍLLI, 13° 47′; 79° 26′, in the Karnátik, a small village 18 miles S. of Kodúr.

Loc. *Dāk bángalo* . . . . . 679 ft. Schl., Ad.

„ *Undefined* . . . . . 630 „ Cull.

2, Pistor. 1855, Feb. 13. *B* = Madras; *C* = Ambúr.

$6^h\ 40^m$ P.M. *A*. 29·304; 66·6; 80. *B*. 29·975; 77·3; 66. + 6 = 680 ft. *C*. 28·922; 75·4. — 4 = 677 ft.

No. 223. VURAMALIPÉT, 13° 33′; 79° 32′, in the Karnátik, S.E. of Tirupáti (Tripétti).

Loc. *Undefined* . . . . . 420 ft. Cull.

No. 224. SIRKUMBÁDI, 13° 39′; 79° 32′, in the Karnátik, N.E. of Tirupáti (Tripétti).

Loc. *Undefined* . . . . . 360 ft. Cull.

No. 225. VONAMÁLLI GHĀT, 13° 30′; 79° 33′, in the Karnátik, between Tirupáti (Tripétti) and Putúr . . . . . 709 ft. Schl., Ad.

2, Pistor. 1855, Feb. 15, 8^h A.M. *A*. 29·363; 70·2; 80. Vellúr 29 319; 68·9. Loc. corr. + 39 ft.

No. 226. PUTÚR, 13° 26′; 79° 34′, in the Karnátik, on the northern foot of the Nágari pass.

Loc. *Dāk bángalo* . . . . . 523 ft. Schl., Ad.

„ *Undefined* . . . . . 480 „ Cull.

2, Pistor. 1855, Feb. 15. *B* = Madras; *C* = Vellúr.

$7^h\ 10^m$ P.M. *A*. 29·445; 72; 77. *B*. 29·928; 75·4; 75. + 13 — 507 ft. *C*. 29 272; 74 8. — 5 = 538 ft.

No. 227. NÁGARI GHĀT, 13° 21′; 79° 35′, in the Karnátik, in the Eastern Ghats.

Loc. *Top of the ghāt* . . . . . 558 ft. Schl., Ad.

2, Pistor. 1855, Feb. 16, $6^h\ 20^m$ A.M. *A*. 29·449; 84·4; 80. Árkot 29·394; 74·7.

No. 228. NÁGARI, 13° 18′; 79° 35′, in the Karnátik, a small village on the southern foot of the Nágari ghāt.

Loc. 1) *Dāk bángalo* . . . . . 406 ft. Schl., Ad.

2, Pistor. 1855, Feb. 16. *B* = Madras; *C* — Árkot.

$4^h\ 20^m$ P.M. *A*. 29·477; 83 8; 51. *B*. 29·867; 80 0; 60. — 10 = 401 ft. *C* 29·268; 82·6. + 6 = 410 ft.

Loc. 2) *Level of the Nágari* . . . . . 360 ft. Cull.

No. 229. NELLATÚR, 13° 15′; 79° 40′, in the Karnátik, a small village on the left bank of the Nágari.

Loc. *Large tank* . . . . . 174 ft. Schl., Ad.

2, Pistor. 1855, Feb. 7, $3^h\ 40^m$ A.M. *A.* 29·658; 68·7; 60. Bombay 29·805; 76·0; 82. — 5 ft.

No. 230. KONIKÓMA, 13° 11′; 79° 45′, in the Karnátik, W. of Tripassúr.

Loc. *Mean height of the village* . . . . . 170 ft. Cull.

No. 231. NELLÚR, 14° 27′; 79° 59′, in the Karnátik, 12 miles W. of the sea shore.

Loc. *Mean height of the village* . . . . . 80 ft. Scott.

No. 232. PUNAMÁLLI, 13° 3′; 80° 7′, in the Karnátik, a large military station, 12 miles W. of Madras.

Loc. *Dāk bángalo* . . . . . 89 ft. Schl., Rob.

1, Greiner 1855, Feb. 17.

Hour.	Punamálli.	Madras.	Height.
h m			
10 0 A.M.	29·890; 79·0; 73	29·956; 80·2; 76	91
11 0 „	29·875; 80 1; 72	29·932; 82 2; 72	83
11 30 „	29·855; 80 1; 71	29·921; 83·6; 69	92
12 Noon	29·855; 73·9; 95	29·908; 83·5; 69	78
3 0 P.M.	29 776; 77·0; 79	29·852; 79·0; 84	100

No. 233. MADRAS, 13° 4′·2; 80° 13′·9 ⨁, (referred to the Gov. Observatory) in the Karnátik.

Loc. 1) *Cistern of the barometer at the Observatory* . . . . . 27 ft. Gov. Astronomers.

„ 2) *Thomas Mount* . . . . . 314 „ P. C. Worcester.

No. 234. BAIZVÁRA, 16° 31′·6; 80° 40′·1 ⨁, in the Karnátik, on the left bank of the Krishna . . . . . 180 ft. Cull.

No. 235. GANNARÁM, 16° 33′; 80° 48′, in the Karnátik, 10 miles E. of Baizvára.

Loc. *Mean height of the village* . . . . . 82 ft. Cull.

AREA VI.

KARNATIK AND NÍLGIRIS, WITH AN APPENDIX ON CEYLON.

Longitudinal, from west to east: Madras viâ Bángalur and Utakamánd to Kalikát.

This area comprises the southern provinces of the Indian peninsula, and so completes (with Ceylon as an appendix) the hypsometry of India Proper. At the southern extremity of the area, the Nílgiris, and the various ranges of the Kúnda, Sispára, and Koterghérri, are the mountain systems of greatest absolute elevation in India Proper, and, exceeding as they do at several points 8,000 feet, are particularly well defined and strikingly prominent, on account of their comparatively short distance from the sea shore on either coast of the peninsula.

The Eastern Ghāts are not properly a ridge, though the natives so call the first step, which is met with to the west of the Karimánal (Koromándel) coast.

The mountain system of Ceylon has a pretty well defined position in the centre of the island. The Píduru tálla gálle, its highest peak, attains an elevation of 8,305 feet.

No. 1. PERAMBÁK, 12° 53′·1; 80° 10′·9 ♁, in the Karnátik, 15 miles W. of the sea.

Loc. *Hill Station* . . . . . 273 ft. G. T. S.

No. 2. MALLAPÓDE, 12° 54′·9; 80° 0′·1 ♁, in the Karnátik, 8 miles S. of Punnamálli.

Loc. *Hill Station* . . . . . 481 ft. G. T. S.

No. 3. STRIPERMATÚR, or SHRI PERUMBUDÚR, 12° 58′; 79° 56′, in the Karnátik, 27 miles W. of Madras.

Loc. *Dāk bángalo* . . . . . 144 ft. Schl., Rob.

1, Greiner. 1855, Feb. 18, 10^{h} A.M. *A.* 29·851; 82·2; 65. Madras 29 973; 79·8; 67. — 2 ft.

No. 4. TRIPASSÚR, 13° 8′; 79° 53′, in the Karnátik, 25 miles W. of Madras.

Loc. 1) *Level of the plain* . . . . . 183 ft. Schl., Ad.

„ 2) *Undefined* . . . . . 140 „ Cull.

21, Pistor. 1855, Feb. 17. *B* = Madras; *C* = Balchétti.

$6^h\ 10^m$ P.M. *A*. 29 741; 76 8; 73. *B*. 29 899; 78·7; 76. — 1 = 179. *C*. 29·560; 76·5. = 187 ft.

No. 5. KARANGÚLI, 12° 32′·2; 79° 52′·6 ♁, in the Karnátik, 2 miles S.W. of the Palár.

Loc. *Hill Station* . . . . . 434 ft. G. T. S.

No. 6. VURÍTTI, 12° 22′·7; 79° 39′·8 ♁, in the Karnátik.

Loc. *Hill Station* . . . . . 553 ft. G. T. S.

No. 7. BALCHÉTTI, 12° 51′; 79° 37′, in the Karnátik, 4 miles N. of the Palár.

Loc. 1) *Large tank* . . . . . 363 ft. Schl., Rob.

„ *Undefined* . . . . . 339 „ Bab.

1, Greiner. 1855, Feb. 17.

Hour.	Balchétti.	Madras.	Per. Corr.	Height.
11 A.M.	29·630; 81 3; 48	29·975; 80·5; 59	— 17	347
12 Noon	29 599; 81 7, 57	29 955; 81 4; 59	— 21	351
3 P.M.	29 528; 82 4, 53	29 896; 81 1; 66	— 14	374
4 „	29 521; 82 1; 53	29 890; 80 8; 68	— 11	375

No. 8. KAVERIPÁK, 12° 53′; 79° 29′, in the Karnátik, 8 miles E.S.E. of Árkot.

Loc. *Fort* . . . . . 474 ft. Mountf.

No. 9. MAILLACHÉRRI, 12° 16′·1; 79° 21′·6 ♁, in the Karnátik, near the Gíngi.

Loc. *Hill Station* . . . . . 1,141 ft. G. T. S.

No. 10. ÁRKOT, 12° 54′·3; 79° 19′·0 ♁, in the Karnátik, on the right bank of the Palár, 65 miles W. of Madras.

Loc. 1) *Mean height of the cantonment* . . . . . 599 ft. Schl., Rob.

„ *Undefined* . . . . . 634 „ Bab.

1, Greiner. 1855, Feb. 16.

Hour.	Árkot.	Madras.	Per. Corr.	Height.
10 A.M.	29·410; 79·3; 57	29 998; 79 2; 67	— 11	590
11 „	29·382; 80·8; 55	29 973; 80·4; 65	— 29	578
2 P.M.	29·276; 82·2; 51	29·891; 80 9; 64	— 30	603
3 „	29·261; 84·0; 47	29·887; 80·5; 63	· 25	617
4 „	29 264; 82·9; 44	29·871; 80·1; 62	— 18	608
5 „	29·272; 81·9; 45	29 868; 79·3; 62	— 12	602
6 „	29·296; 77·9; 57	29·883; 77·7; 66	— 6	595

Loc. 2) *Level of the Palár* . . . . . 558 ft. Cull.

No. 11. VALENDERPÉT, 11° 42′; 79° 17′, in the Karnátik, 120 miles S.W. of Madras.

Loc. *Dák bángalo* . . . . . 249 ft. Schl., Ad

6, Adie. 1856, March 1, $5^h\ 10^m$ P.M. *A.* 29·800; 84 6; 49. Madras 30 029; 82 0; 76.

No. 12. KANNÚR, 12° 51′·9; 79° 11′·3 ⅄, in the Karnátik, 5 miles S. of Vellúr.

Loc. *Hill Station* . . . . . 259 ft. G. T. S.

No. 13. VELLÚR, 12° 55′·1; 79° 7′·3 ⅄, in the Karnátik, a station on the right bank of the Palár.

Loc. 1) *Dák bángalo* . . . . . 695 ft. Schl., Rob.

„ *ditto* . . . . . 675 „ Cull.

1, Greiner. 1855, Feb. 15.

Hour.	Vellúr.	Madras.	Per. Corr.	Height.
h m				
10 0 A.M.	29·315; 73·9; 74	30 020; 78 2; 66	— 10	702
11 0 „	29·300; 77·4; 61	29 996; 78·8; 65	— 27	679
12 Noon	29·264; 79 5; 54	29 971; 79 5; 64	— 35	685
1 0 P.M.	29 225; 81·5; 47	29·945; 79·9; 64	— 35	700
2 0 „	29 197; 82 6; 48	29·923; 79·9; 64	— 32	711

Loc. 2) *Top of the hill on which the fort is built* . . . . . 1,482 ft. Schl., Rob.

1, Greiner. 1855, Feb. 15. *B* = Madras; *C* = Vellúr.

5h 40m P.M. *A*. 28·402; 75·7; 58. *B*. 29 903; 77 3; 68. — 35 = 1,481 ft. *C*. 29·197; 77·0. — 11 = 1,482 ft.

Loc. 3) *Vellúr peak* . . . . . 1,826 ft. Mountf.

No. 14. CHITTÚR, 13° 11′; 79° 6′, in the Karnátik, N.N.W. of Árkot.

Loc. *Undefined* . . . . . 1,112 ft. Scott.

„ *ditto* . . . . . 1,057 „ Bab.

No. 15. KARNATIGÁRH, 12° 34′·6; 79° 3′·6 ⛦, in the Karnátik, 12 miles S.W. of Árni.

Loc. *Hill Station* . . . . . 3,204 ft. G. T. S.

No. 16. KAILASGÁRH, *H. S.*, 12° 50′·4; 79° 2′·4 ⛦, in the Karnátik, S.E. of Pallikónda, or Polikónda . . . . . 2,766 ft. G. T. S.

No. 17. PALLIKÓNDA, or POLIKÓNDA, 12° 55′; 78° 57′, in the Karnátik, near the right bank of the Palár.

Loc. *Dák bángalo* . . . . . 841 ft. Schl., Rob.

1, Greiner. 1855, Feb. 14, 10h A.M *A*. 29·225; 77·9; 55. Madras 30·061; 78·2; 59. — 8 ft.

No. 18. RÁSHI, 12° 44′; 78° 52′, in the Karnátik, 10 miles S. of Pallikónda, or Polikónda.

Loc. *Top of the Jarádi hill* . . . . . 2,273 ft. Mountf.

No. 19. MÚGLI, 13° 9′; 78° 51′, in the Karnátik, W. of Chittúr.

Loc. *Undefined* . . . . . 1,635 ft. Bab.

No. 20. PALMANÉR, 13° 12′; 78° 45′, in the Karnátik, a large town on an open plain, W. of Chittúr.

Loc. 1) *Dak bángalo* . . . . . 2,618 ft. Schl., Herm.

4, Adie. 1855, Feb. 10, 3h 15m P.M. *A*. 27 371; 76·6; 23. Madras 30·005; 78·7; 58. — 80 ft.

Loc. 2) *Undefined* . . . . . 2,214 ft. Bab.

No. 21. LALPÉT, 12° 57′; 78° 44′, in the Karnátik, W. of Pallikónda, or Polikónda.

Loc. *Undefined* . . . . . ab. 1,200 ft. Cull.

No. 22. AMBÚR, 12° 48′; 78° 43′, in the Karnátik, on the right bank of the Palár.

Loc. *Dak bángalo* . . . . . 1,053 ft. Schl., Rob

1, Greiner. 1855, Feb 13, 11h A.M. *A.* 28·973; 78·3; 55. Madras 30·040; 79·4; 65. — 31 ft.

No. 23. TRICHINÁPALLI, 10° 49′·8; 78° 40′·9 ☩, in the Karnátik, a large station.

Loc. 1) *Dak bángalo* . . . . . 297 ft. Schl., Ad.

The dāk bángalo is lower than the cantonment in general.

6, Adie. 1856, March 7, 4h 45m P.M. *A.* 29·650; 86 0; 48. Madras 29·929; 83·2; 62. — 5 ft.

Loc. 2) *Level of the Káveri* . . . . . 236 ft. Cull.

No. 24. PATTIKÓNDA, 13° 10′·4; 78° 37′·7 ☩, in Maissúr, 7 miles W. of Palmanér.

Loc. *Hill Station* . . . . . 2,942 ft. G. T. S

No. 25. NAIKANÁRI, 12° 57′; 78° 36′, in the Karnátik, E. of Venketaghérri.

Loc. *Undefined* . . . . . 2,221 ft. Cull.

No. 26. PALAMATÚR, 11° 16′; 78° 36′, in the Karnátik, 9 miles S.W. of Arambúr.

Loc. *Undefined* . . . . . 276 ft. I. A. 79

No. 27. NATARAMPÁLLI, 12° 36′; 78° 32′, in the Karnátik, on an affluent of the Palár, 77 miles S.E. of Bángalur.

Loc. *Dāk bángalo* . . . . . 1,444 ft. Schl., Rob.

1, Greiner. 1855, Feb. 12, 12h 15m P.M. *A.* 28 583; 79·5; 46. Madras 30 045, 79·8; 63. 43 1,444 ft.
„ „ „ 3h 30m „ „ 28 516; 80·6; 37. „ 29·975; 79·2; 65. — 44 = 1,444 „

No. 28. MULVÁGEL, 13° 10′; 78° 24′, in the Karnátik, E. of Kolár, in a large plain.

Loc. 1) *Dak bángalo* . . . . . 2,819 ft. Schl., Herm.

4, Adie. 1855, Feb. 10, 10h A.M. *A.* 27·300; 68·7; 33. Madras 30·105; 78 2; 57. — 28 ft.

Loc. 2) *Undefined* . . . . . 2,768 ft. Bab.

No. 29. TURMAKÚRCHI, 10° 23′; 78° 24′, in the Karnátik, N.E. of Madúra.

Undefined . . . . . 812 ft Cull.

No. 30. ALLAVALPÁDI GHĀT, 12° 32′; 78° 23′, in the Karnátik, between Kistnaghérri and Vaniambádi . . . . . 1,579 ft. Schl., Rob.

1, Greiner. 1855, Feb. 12, 6h A.M. *A.* 28·402; 57 6; 60. Bombay 29 941; 72 4; 76. + 45 ft.

No. 31. Batmángalam, 13° 1′; 78° 21′, in Maissúr, W.S.W. of Kolár.

Loc. *Undefined* . . . . . 2,579 ft. Cull.

No. 32. Malainingpílli, 11° 38′; 78° 15′, in Maissúr, 9 miles S. of Kistnaghérri.

Loc. *Undefined* . . . . . 2,744 ft. Mountf.

No. 33. Kistnaghérri, 12° 32′·3; 78° 12′·0 ⨁, in the Karnátik, in a plain with hills in the distance.

Loc. *Dak bángalo* . . . . . 1,698 ft. Schl., Rob.

1, Greiner. 1855, Feb. 11, 10h 15m A.M. *A.* 28·398; 76·1; 43. Madras 30·099; 78·7; 59. — 21 ft.

No. 34. Namkaldrúg, 11° 13′·4; 78° 9′·0 ⨁, in the Karnátik, N.W. of Trichinápalli.

Loc. *Undefined* . . . . . 511 ft. Cull.

No. 35. Sálem, 11° 39′·2; 78° 8′·4 ⨁, in the Karnátik, a large place with a fort.

Loc. *Undefined* . . . . . 907 ft. Cull.

No. 36. Kolár, 13° 9′; 78° 8′, in Maissúr.

Loc. *Undefined* . . . . . 2,764 ft. Bab.

„ *ditto* . . . . . 1,714 „ Scott.

No. 37. Madúra, 9° 55′·3; 78° 6′·3 ⨁, in the Karnátik, a large station.

Loc. *Level of the Váiga* . . . . . 600 ft. Cull.

No. 38. Kistnaghérri Ghat, 12° 37′; 78° 6′, in the Karnátik, 6 miles S.E. of Sulaghérri.

Loc. 1) *Top of the ghat* . . . . . 2,150 ft. Schl., Rob.

1, Greiner 1855, Feb. 11, 1h 45m A.M. *A.* 27·772; 57 9; 70. Madras 29·984; 78·4; 60. — 65 ft.

Loc. 2) *Eastern foot of the ghat* . . . . . 1,855 ft. Schl., Rob.

= 295 ft. below the Kistnaghérri ghat; by aneroid.

No. 39. Sikandermálli, 9° 52′·6; 78° 4′·3 ⨁, in the Karnátik, 5 miles S. of Madúra.

Loc. *Hill Station* . . . . . 1,121 ft. G. T. S.

No. 40. TÁPUR, 11° 55′; 78° 4′, in the Karnátik, N.W. of Sálem.
Loc. *Undefined* . . . . . 1,102 ft. Cull.

No. 41. RAYAKÓTTA, 12° 31′; 78° 3′, in the Karnátik, 12 miles S. of Sulaghérri.
Loc. *Undefined* . . . . . 2,449 ft. Scott.

No. 42. SULAGHÉRRI, 12° 40′; 78° 1′, in Maissúr, with a fort on the top of a granite hill.
Loc. *Base of the hill* . . . . . 2,341 ft Schl., Rob.

1, Greiner. 1855, Feb. 10. Loc. Corr. — 10 ft.
5h 20m P.M. *A.* 27·654; 76·5; 35. Madras 30·002; 77 1; 59. — 63 = 2,336 ft.
7h 10m „ „ 27·682; 71·4; 53. „ 30·019; 74·9; 66. — 19 = 2,346 „

No. 43. NÁRSIPUR, 13° 8′; 78° 1′, in Maissúr, 26 miles N.E. of Bángalur.
Loc. *Undefined* . . . . . 2,901 ft. Cull

No. 44. KUTEAPÁRA, *H. S.*, 9° 28′·9; 77° 59′·7 ⛦, in the Karnátik, 6 miles W. of Arapkóta . . . . . 412 ft. G. T. S

No. 45. RAIMANDRÚG, 13° 21′·3; 77° 59′·5 ⛦, in Maissúr, N.E. of Davanhálli.
Loc. *Hill Station* . . . . . 4,226 ft. G. T. S.

No. 46. DINDIGÁL, 10° 21′; 77° 59′, in the Karnátik, S.E. of Koimbatúr.
Loc. *Undefined* . . . . . 700 ft. Scott.

No. 47. MINACHIPÚRAM, 9° 12′·7; 77° 57′·9 ⛦, in the Karnátik, 4 miles N. of Yettapúram.
Loc. *Hill Station* . . . . . 344 ft. G. T. S

No. 48. YERRAKÁLLI, 12° 53′; 77° 57′, in Maissúr, 71 miles S.E. of Uskótta, or Hoskóta.
Loc. *Undefined* . . . . . 3,396 ft. Mountf.

No. 49. KOLANELLÚR, 8° 55′·7; 77° 57′·0 ⛦, in the Karnátik, 3 miles W. of Votápadarám.
Loc. *Hill Station* . . . . . 877 ft. G. T. S.

No. 50. NAGAMÁLLI, *H. S.*, 10° 0′·0; 77° 55′·3 ⛦, in the Karnátik, on the south bank of the Váiga . . . . . 1,106 ft. G. T. S.

No. 51. PARMÁTTI, or MOLOPÁLLIAM, *H. S.*, 10° 58′·6; 77° 54′·5 ⏚, in the Karnátik, 10 miles S. of Kodimúdi . . . . . 880 ft. G. T. S.

No. 52. KOVILLPÁTTI, 9° 10′; 77° 53′, in the Karnátik, N. of Tinnevélli.
Loc. *Undefined* . . . . . 356 ft. Cull.

No. 53. TIRTAPÁLLI, *H. S.*, 13° 2′·4; 77° 52′·3 ⏚, in Maissúr, 7 miles E.S.E. of Hoskóta, or Uskótta . . . . . 3,183 ft. G. T. S.

No. 54. VALANÁD, 8° 42′·9; 77° 52′·2 ⏚, in the Karnátik, 10 miles E. of Palamkótta.
Loc. *Hill Station* . . . . . 1,052 ft. G. T. S.

No. 55. RISHIMÁLLI, 10° 12′·6; 77° 52′·1 ⏚, in the Karnátik, 12 miles S. of Dindigál.
Loc. *Hill Station* . . . . . 1,760 ft. G. T. S.

No. 56. KARUMÁLLI, 10° 35′·4; 77° 51′·6 ⏚, in the Karnátik, 17 miles N.W. of Dindigál.
Loc. *Hill Station* . . . . . 2,612 ft. G. T. S.

No. 57. HOSKÓTA, or USKÓTTA, 13° 5′; 77° 48′, in Maissúr, 16 miles N.E. of Bángalur . . . . . 2,804 ft. Bab.

No. 58. GOPALSVÁMI, *H. S.*, 9° 39′·4; 77° 47′·0 ⏚, in the Karnátik, 6 miles S.E. of Tumichimaikpétta . . . . . 748 ft. G. T. S.

No. 59. MARGANHÁLLIT, 13° 31′; 77° 46′, in Maissúr, on the foot of the Kondikónda plateau.
Loc. *Margin of the plateau* . . . . . 3,070 ft. Schl., Rob.
1, Greiner, 1855, Feb. 6. 7h 30m A.M. *A.* 27·556; 62·4; 58. Bombay 30 048; 71·5; 83. + 45 ft.

No. 60. TALANTPÓTHA, *H. S.*, 8° 49′·0; 77° 44′·5 ⏚, in the Karnátik, 6 miles N. of Páliam Kótta (Palamkótta) . . . . . 539 ft. G. T. S.

No. 61. CHÓTA BÁLAPUR, 13° 26′; 77° 44′, in Maissúr, in an open plain, 31 miles N.W. of Bángalur.
Loc. *Dak bángalo* . . . . . 3,016 ft. Schl., Rob.
4, Adie. 1855, Feb. 6, 12h 15m P.M. *A.* 27 107; 78 1; 81 6. Madras 30·131; 80·8; 68. — 92 = 3,035 ft.
„ „ „ 6h 30m „ „ 27·142; 71·2; 54 6. „ 30 118; 78 0; 74. — 45 = 2,996 „

No. 62. PALAMKÓTTA, 8° 43′·5; 77° 43′·3♁, in the Karnátik, near Tinnevélli.
Loc. *Sádi Khan's Choultry* . . . . . 209 ft. Cull.

No. 63. PAULAMÁLLI, 11° 41′·7; 77° 43′·3♁, in the Karnátik, 2 miles W. of the Káveri.
Loc. *Hill Station* . . . . . 4,959 ft. G. T. S.

No. 64. DAVANHÁLLI, 13° 15′; 77° 43′, in Maissúr, a large village, 21 miles N.N.E. of Bangalúr.
Loc. *Dák bángalo* . . . . . 2,910 ft. Schl., Herm.

1, Greiner. 1855, Feb. 7, 6h P.M. *A.* 27·197; 70·5; 51. Madras 30·107; 78·3; 75; — 59.

No. 65. VURACHMÁLLA, *H. S.*, 11° 28′·6; 77° 40′·4♁, in the Karnátik, near the right bank of the Káveri . . . . . 1,472 ft. G. T. S.

No. 66. KUDANKOLÁM, *T. S.*, 8° 10′·6; 77° 39′·9♁, in the Karnátik, 3 miles N.E. of Pillikolám, near the sea shore . . . . . 166 ft. G. T. S.

No. 67. SĂDRAGÍRI, 9° 44′·4; 77° 39′·7♁, in the Karnátik, 15 miles N. of Shevilipútur.
Loc. *Hill Station* . . . . . 4,220 ft. G. T. S.

No. 68. KUNATURPÓTHA, *H. S.*, 8° 41′·9; 77° 39′·5♁, in the Karnátik, 2 miles S.W. of Tinnevélli . . . . . 497 ft. G. T. S.

No. 69. PONNASMÁLLA, 12° 8′·8; 77° 37′·7♁, in the Karnátik, 5 miles S. of the Káveri.
Loc. *Hill Station* . . . . . 4,928 ft. G. T. S.

No. 70. DURABÉTTA, 12° 37′·5; 77° 36′·7♁, in Maissúr, 7 miles S. of Annikál.
Loc. *Hill Station* . . . . . 3,408 ft. G. T. S.

No. 71. DODAGÚNTA, 13° 0′·1; 77° 36′·6♁, in Maissúr, near Mantapám.
Loc. *Hill Station* . . . . . 3,038 ft. G. T. S.

No. 72. Pachapólliam, 10° 59′·8; 77° 36′·5 ⅄, in the Karnátik.

Loc. *Tower Station* . . . . . 1,010 ft. G. T. S.

No. 73. Valankótta, 8° 48′·4; 77° 36′·5 ⅄, in the Karnátik, 7 miles N.W. of Tinnevélli.

Loc. *Hill Station* . . . . . 592 ft. G. T. S.

No. 74. Kanimapótha, 8° 30′·5; 77° 36′·4 ⅄, in the Karnátik, 3 miles W. of Nagalanchérri.

Loc. *Hill Station* . . . . . 709 ft. G. T. S.

No. 75. Allassúr, 13° 9′·7; 77° 36′·1 ⅄, in Maissúr, 12 miles N. of Dodagúnta.

Loc. *Hill Station* . . . . . 3,381 ft. G. T. S.

No. 76. Kálkóta, 13° 25′·2; 77° 35′·1 ⅄, in Maissúr, 7 miles N.W. of Nandidrúg.

Loc. *Hill Station* . . . . . 3,407 ft. G. T. S.

No. 77. Panamgúdi, 8° 20′; 77° 35′, in the Karnátik, N. of the Cape Komorin.

Loc. *Undefined* . . . . . 356 ft. Cull.

No. 78. Partimálli, 10° 40′·0; 77° 34′·7 ⅄, in the Karnátik, 6 miles N. of Darporám.

Loc. *Hill Station* . . . . . 1,308 ft. G. T. S.

No. 79. Shennimálli, 11° 9′·5; 77° 34′·5 ⅄, in the Karnátik, 12 miles W. of the Káveri.

Loc. *Hill Station* . . . . . 1,789 ft. G. T. S.

No. 80. Kangiám, 11° 0′; 77° 34′, in the Karnátik, 84 miles W.N.W. of Trichinápalli.

Loc. *Dak bángalo* . . . . . 1,001 ft. Schl., Ad.

6, Adie. 1856, March 9. *B* = Bombay; *C* = Madras.

12h 30m P.M. *A*. 28·871; 89·1; 36. *B*. 29·841; 86·0; 74. — 36 = 985 ft. *C*. 29·882; 87·9, 68. — 37 = 1,017 ft.

No. 81. Bonnergótta, 12° 48′·7; 77° 33′·6 ⅄, in Maissúr, 10 miles S. of Bangalúr.

Loc. *Hill Station* . . . . . 3,305 ft. G. T. S.

No. 82. Bangalúr, 12° 57′·6; 77° 33′·5 ⅄, in Maissúr, a large military station.

Loc. 1) *Mean height of the cantonment* . . . . . 2,949 ft. Schl., Ad.

„ 2) *Undefined* . . . . . 2,874 „ Bab.

6, Adie. 1856, March 20, 6h P.M. *A*. 26·882, 83·8; 34. Madras 29·730; 84·2; 82. — 50 ft.

Loc. 3) *Hill near the house of the late General Sir Mark Cubbon* 2,992 ft. Schl., Rob.

4, Adie. 1855, Feb. 8, $8^h\ 30^m$ A.M. *A.* 27·079; 62·6; 68. Madras 30·037; 76·0; 82 = 2,991 ft.

Cull. gives for the same locality 3,000 ft., and also elsewhere 2,986 ft. We take the mean of all three data.

No. 83. PERMÁL, 10° 18′·0; 77° 32′·9 ♁, in the Karnátik, S. of Páine.

Loc. *Hill Station* . . . . . 7,368 ft. G. T. S.

No. 84. PERIURMÁLLI, *H. S.*, 9° 12′·4; 77° 28′·9 ♁, in the Karnátik, 4 miles N.W. of Sangarnakóil, province of Tinnevélli . . . . . 1,429 ft. G. T. S.

No. 85. KALLAGAMÁLLI, *H. S.*, 11° 0′·9; 77° 25′·4 ♁, in the Karnátik, 7 miles S.W. of Shennimálli . . . . . 1,408 ft. G. T. S.

No. 86. BUDALADRÚG, 12° 17′; 77° 25′, in Maissúr, on the left bank of the Káveri.

Loc. *Top of the peak S. of Budaladrúg* . . . . . 4,254 ft. Mountf.

No. 87. BÍRDI, or BIDÁDI, 12° 48′; 77° 24′, in Maissúr, 20 miles S.W. of Bangalúr.

Loc. *Dák bángalo* . . . . . 2,420 ft. Schl., Ad.

„ *Undefined* . . . . . 2,344 „ Cull.

6, Adie. 1856, March 20. *B* = Bombay; *C* = Madras.

$10^h\ 15^m$ A.M. *A.* 27·532; 83·6; 30. *B.* 29 865; 82 6; 68. − 23 = 2,410 ft. *C.* 29 876; 90 3; 56. — 23 = 2,429 ft

---

No. 88. NANDIDRÚG, 13° 22′·2; 77° 20′·1 ♁, in Maissúr, 8 miles S. of Chóta Bálapur.

Loc. *Hill Station* . . . . . 4,857 ft. G. T. S.

No. 89. BANDHÁLLI, *H. S.*, 12° 12′·3; 77° 19′·2 ♁, in Maissúr, S. of the Káveri, northern district of Koimbatúr . . . . . 4,255 ft. G. T. S.

No. 90. KLOSEPÉT, 12° 43′; 77° 17′, in Maissúr, on the left bank of the Arkaváti, S.W. of Bangalur.

Loc. *Level of the Arkavâti* . . . . . 2,298 ft. Cull.

No. 91. SAVENDRÚG, 12° 55′·2; 77° 16′·4 ♁, in Maissúr, W. of Bangalúr.

Loc. *Hill Station* . . . . . 4,005 ft. G. T. S.

No. 92. Siramsgái, 11° 20′; 77° 16′, in the Karnátik, on the right bank of the Bhováni.
Loc. *Dak bángalo* . . . . . ab. 1,100 ft. Scott.

No. 93. Chitkál, 13° 19′·3; 77° 15′·4 ⏚, in Maissúr, near a large village.
Loc. *Hill Station* . . . . . 3,329 ft. G. T. S.

No. 94. Kambetaríne, 11° 35′·5; 77° 14′·3 ⏚, in the Nílgiris, 9 miles N. of the Bhováni.
Loc. *Hill Station* . . . . . 5,549 ft. G. T. S.

No. 95. Chinapatám, 12° 39′; 77° 13′, in Maissúr, S.W. of Bírdi, or Bídadi.
Loc. *Undefined* . . . . . 2,011 ft. Bab.

No. 96. Davaroidrúg, 13° 22′·4; 77° 11′·6 ⏚, in Maissúr, 6 miles W. of Kolár.
Loc. *Hill Station* . . . . . 3,940 ft. G. T. S.

No. 97. Danayakhán Kotái, 11° 26′; 77° 5′, in the Karnátik, on the left bank of the Bhováni, E. of Utakamánd . . . . . 1,066 ft. Scott.

No. 98. Madúr, 12° 35′; 77° 1′, in Maissúr, on the left bank of the Shímsha, E.N.E. of Seringapatám.
Loc. *Level of the Shímsha* . . . . . 2,001 ft. Call.

No. 99. Gájlhálli, or Gázzelhálli, 11° 33′; 77° 1′, in the Nílgiris, on the left bank of the Moyár, N.E. of Utakamánd . . . . . 5,948 ft. Scott.

No. 100. Koimbatúr, 11° 1′; 76° 58′, in the Nílgiris, 80 miles E. of Kalikát.
Loc. *Palace* . . . . . 1,483 ft. Baik.

No. 101. Metupálliam, 11° 18′; 76° 56′, in the Karnátik, on the E.S.E. foot of the Nílgiris, at the right bank of the Bhováni.
Loc. 1) *Dak bángalo* . . . . . 1,085 ft. Schl., Ad.

6, Adic. 1856, March 10. *B* = Bombay; *C* = Madras.
11h 45m A. M. *A.* 28·812; 89·6; 37. *B.* 29·826; 85·2; 75. — 25 = 1,046 ft. *C.* 29·916; 88·2; 72. — 28 = 1,124 ft.

Loc. 2) *Undefined* . . . . . 1,000 ft. Baik.

No. 102. KODANÁD PEAK, 11° 30′; 76° 55′, in the Nílgiris, 3 miles N. of Koterghérri.

Loc. *Top of the peak* . . . . . 6,571 ft. Baik.

No. 103. TRIVÁNDRAM, 8° 29′·1; 76° 55′·7 ♁, in Málabar, near the sea shore.

Loc. 1) *Observatory* . . . . . 195 ft. Thorn.

„ 2) *Mean height of the town* . . . . . 135 „ Thorn.

No. 104. TAMBARBÉTTA PEAK, 11° 23′; 76° 55′, in the Nílgiris, E. of Utakamánd.

Loc. *Top of the peak* . . . . . 7,292 ft. Baik.

No. 105. KUNDABÉTTA PEAK, 11° 25′; 76° 53′, in the Nílgiris, near Koterghérri.

Loc. *Top of the peak* . . . . . 6,555 ft. Baik.

No. 106. JAKANÁRI, 11° 24′; 76° 53′, in the Nílgiris, E. of Utakamánd.

Loc. *Undefined* . . . . . 5,000 ft. P.C.

No. 107. DAVERBÉTTA PEAK, 11° 18′; 76° 50′, in the Nílgiris, the "sugar-loaf" peak, E.S.E. of Utakamánd . . . . . 6,571 ft. Baik.

No. 108. URBÉTTA PEAK, 11° 26′; 76° 51′, in the Nílgiris, 5 miles W.S.W. of Koterghérri.

Loc. *Top of the peak* . . . . . 6,915 ft. Baik.

No. 109. KUNDAMÓYA PEAK, 11° 23′; 76° 48′, in the Nílgiris, E. of Utakamánd.

Loc. *Top of the peak* . . . . . 7,816 ft. Baik.

No. 110. HOKALBÉTTA PEAK, 11° 28; 76° 48′, in the Nílgiris, N.E. of Utakamánd.

Loc. *Top of the peak* . . . . . 7,267 ft. Baik.

No. 111. KUNNÚR, 11° 22′; 76° 45′, in the Nílgiris, S.E. of Utakamánd.

Loc. 1) *Hôtel* . . . . . 5,960 ft. Schl., Ad

6, Adie. 1856, March 11. *B* — Bombay; *C* — Madras.

1h 15m P.M. *A.* 24·256; 75·1; 30. *B.* 29·847; 87·0; 68. — 163 = 5,961 ft. *C.* 29·845; 88·4; 70. — 161 = 5,959 ft.

Loc. 2) *Mean height of the Jakatálla cantonment* . . . . ab. 6,100 ft. Baik

„ 3) *Undefined* . . . . . 5,886 „ Scott.

No. 112. Dodabétta Peak, 11° 23′; 76° 44′, in the Nílgiris, 1 mile S.E. of Utakamánd, the highest in the Nílgiris.

Loc. *Top of the peak* . . . . . 8,640 ft. Syk.

No. 113. Bevoibétta Peak, 11° 21′; 76° 43′, in the Nílgiris, S. of the Dodabétta peak.

Loc. *Top of the peak* . . . . . 8,488 „ Baik.

No. 114. Utakamánd, 11° 23′·7; 76° 43′·2 ⏚, in the Nílgiris, a sanitarium.

Loc. 1) *Dawson's Hôtel* . . . . . 7,490 ft. Schl., Ad.

6, Adie. 1856, March 17. *B* = Bombay; *C* = Madras.

7h 30m A.M.	*A.* 23·162, 58·1; 27.	*B.* 29·906; 79·8; 84. + 131 = 7,473 ft.	*C.* 29·987; 79·3; 89. + 132 = 7,540 ft.
9h 30m „	„ 23·174; 64·8; 35.	„ 29 931; 83·6; 73. — 15 = 7,426 „	„ 30·022; 85·9; 73. — 15 = 7,519 „

Loc. 2) *Utakamánd lake* . . . . . 7,278 ft. Schl., Ad.

— 112 ft. below the hôtel; by aneroid.

„ *ditto* . . . . . 7,361 „ Scott.

No. 115. Daversolabétta Peak, 11° 27′; 76° 43′, in the Nílgiris, 2 miles N. of Utakamánd . . . . . 8,380 ft. Baik.

No. 116. Sígur, 11° 31′; 76° 42′, in Maissúr, 11 miles N. of Utakamánd, on the northern foot of the Nílgiris.

Loc. 1) *Dak bángalo* . . . . . 3,096 ft. Schl., Ad.

6, Adie. 1856, March 18. *B* = Bombay; *C* = Madras.

8h 40m A.M. *A.* 26·985; 78 1; 25. *B.* 29 920; 84·5; 63. + 19 = 3,083 ft. *C.* 29·954; 84·6; 79. + 19 = 3,108 ft.

Loc. 2) *Kilhátti bángalo* . . . . . 5,500 ft. Baik.

„ 3) *Top of the Sígur pass* . . . . . 7,204 „ Baik.

No. 117. Palghatchérri, 10° 46′; 76° 40′, in the Karnátik, near the right bank of the Ponáni . . . . . ab. 800 ft. Scott.

No. 118. Seringapatám, 12° 25′·6; 76° 39′·7 ⏚, in Maissúr, a large station on an island in the Káveri.

Loc. 1) *Mean height of the station* . . . . . 2,558 ft. Cull.

„ 2) *Level of the Káveri* . . . . . 2,321 „ Cull.

„ 3) *Undefined* . . . . . 2,049 „ Bab.

No. 119. Maissúr Hill Station, 12° 16′·7; 76° 39′·1 ⏚, in Maissúr, 2 miles S.E. of the town of Maissúr . . . . . 3,447 ft. G. T. S.

No. 120. MAISSÚR TOWN, 12° 18′; 76° 39′, in Maissúr, 6 miles S. of the Káveri.

Loc. *Dák bángalo* . . . . . 2,514 ft. Schl., Ad.

6, Adic. 1856, March 19. *B* = Bombay; *C* = Madras.

9h A.M. *A.* 27·532; 82·3; 35. *B.* 29·920; 83·2; 70. + 7 = 2,497 ft. *C.* 29·957; 87·3; 64. + 7 = 2,531 ft.

Loc. *ditto* . . . . . 2,513 ft. Cull.

No. 121. BOMANÉLLI, 13° 16′·3; 76° 37′·1 ⅄, in Maissúr, 6 miles N.E. of Nugihálli.

Loc. *Hill Station* . . . . . 3,142 ft. G. T. S.

No. 122. KÚNDA PEAK, 11° 16′; 76° 35′, in the Nílgiris, S.W. of Utakamánd.

Loc. *Top of the peak* . . . . . 8,353 ft. Baik.

No. 123. MAKÚRTI PEAK, 11° 22′; 76° 31′, in the Nílgiris, 14 miles W. of Utakamánd. in the Kúnda range . . . . . 8,402 ft. Baik.

No. 124. SISPÁRA, 11° 15′; 76° 30′, in the Nílgiris, a pass about 31 miles S.W. of Utakamánd.

Loc. 1) *Level of the bángalo at the top of the pass* . . . . . 6,742 ft. Baik.

„ 2) *Level of the Avalanche bángalo* . . . . . 6,720 „ Baik.

No. 125. MALLAPANNABÉTTA, *H. S.*, 12° 55′·1; 76° 16′·0 ⅄, in Maissúr, 7 miles N. of the Hennavátti . . . . . 3,407 ft. G. T. S

No. 126. BÉTTA DAPÚR, 12° 27′·2; 76° 5′·7 ⅄, in Maissúr, 5 miles E. of the Káveri.

Loc. *Hill Station* . . . . . 4,350 ft. G. T. S.

No. 127. MANANTAVÁDI, 11° 48′; 76° 1′, in Málabar, N.E. of Tellichérri.

Loc. *Undefined* . . . . . 2,685 ft. Bab

No. 128. BUGARGÚDA, 13° 3′·1; 75° 58′·8 ⅄, in Maissúr, near the Yagáchi.

Loc. *Hill Station* . . . . . 655 ft. G. T. S

No. 129. KUNDÚR. *H. S.*, 12° 51′·3; 75° 55′·8 ⅄, in Maissúr, between the Yagáchi and Hennavátti . . . . . 3,845 ft. G. T. S.

No. 130. Pária, 11° 50′; 75° 51′, in Málabar, N.E. of Tellichérri.
Loc. *Undefined* . . . . . 2,526 ft. Baik.

No. 131. Nedimranchál, 11° 52′; 75° 47′, in Málabar, 14 miles E. of Tellichérri.
Loc. *Undefined* . . . . . 484 ft. Bab.

No. 132. Merkára, 12° 24′; 75° 45′, in Maissúr, a town in the province of Kurg, 47 miles N.E. of Kannanúr.
Loc. *Top of the hill fort* . . . . . 4,506 ft. Thorn.

No. 133. Kundhálli, 12° 39′·6; 75° 44′·8 ⏚, in Maissúr, N. of Merkára.
Loc. *Hill Station* . . . . . 4,366 ft. G. T. S.

No. 134. Permakóst, 12° 11′·9′; 75° 43′·4 ⏚, in Málabar, W. of Virajánderpét.
Loc. *Hill Station* . . . . . 485 ft. G. T. S.

No. 135. Hannabétta, 13° 6′·0; 75° 42′·9 ⏚, in Maissúr, 10 miles S. of Vastára.
Loc. *Hill Station* . . . . . 3,711 ft. G. T. S.

No. 136. Subramáni, *H. S.*, 12° 39′·7; 75° 39′·9 ⏚, in Maissúr, province of Kurg, N.W. of Merkára . . . . . 5,584 ft. G. T. S.

No. 137. Taddiandamóle, *H. S.*, 12° 13′·1; 75° 35′·2 ⏚, in Maissúr, province of Kurg, 10 miles W. of Virajánderpét . . . . . 5,680 ft. G. T. S.

No. 138. Tautiotemála Peak, 12° 9′; 75° 31′, in Málabar, N.E. of Mount Dílli.
Loc. *Top of the peak* . . . . . 5,681 ft. Mountf.

No. 139. Tellichérri, 11° 45′; 75° 28′, in Málabar, on the shore of a seaport, 95 miles S.W. of Seringapatám . . . . . 155 ft. Bab.

No. 140. Dílli, or Yemálle Mountain, 12° 1′·7; 75° 10′·8 ⏚, in Málabar, near the sea coast . . . . . 804 ft. G. T. S.

No. 141. Ballamálli, 12° 48′·6; 75° 3′·9 ⏚, in Málabar, between Mangalúr and Putár.
Loc. *Hill Station* . . . . . 775 ft. G. T. S.

CEYLON.

1. Kándi viâ Nurélia (Newerra Ellia) to Bádula.

No. 142. KÁNDI, 7° 17′; 80° 49′, in Ceylon, one of the principal towns in the interior.

Loc. 1)	*Undefined*	1,739 ft.	F. and S
„ 2)	*Bellungálle village, S.W. of Kándi*	2,259 „	Fras.
„ 3)	*Matína Pátin, S. of Kándi*	3,201 „	Fras.
„ 4)	*Peredénia*	1,650 „	F. Layard

No. 143. GÁMPOLA, 7° 11′; 80° 49′, in Ceylon, 12 miles S. of Kándi.

Loc.	*Level of the Mahavélli Gánga*	1,692 ft.	F. and S.

No. 144. RANGBÓDDE, or RAMBÓDDE, 7° 9′; 81° 49′, in Ceylon, 10 miles N.W. of Nurelia.

Loc. 1)	*Old rest-house*	3,187 ft.	F. and S.
„ 2)	*Flag-staff at the foot of the Rangbódde pass*	6,589 „	F. and S.

No. 145. NURÉLIA (NEWERRA ELLIA), 7° 3′; 81° 52′, in Ceylon, a sanitarium in the interior of the island.

Loc. 1)	*Mean height of the plain*	6,218 ft.	Fras.
„ 2)	*Maturálte, N.E. of Nurélia*	3,146 „	Fras.
„ 3)	*Fort McDonald, S.E. of Nurélia*	3,850 „	Fras.
„ 4)	*Lohubgálle, 7 miles of Nurélia*	5,268 „	F. and S.
„ 5)	*Péduru tálla gálle peak, N. of Nurélia*	8,305 „	F. and S
„	*ditto*	8,326 „	Fras.
„	*ditto*	8,280 „	Tenn.

This is the highest peak in Ceylon.

Loc. 6)	*False Péduru peak*	6,800 „	Fras.
„ 7)	*Kirigalpótta peak*	7,810 „	Tenn
„ 8)	*Totapélla peak*	7,720 „	Tenn

No. 146. WILSON'S BÁNGALO, 6° 53′; 80° 56′, in Ceylon, 13 miles S.E. of Nurélia (Newerra Ellia).

Loc. 1)	*Floor of the bángalo*	4,119 ft.	F. and S.
„	*ditto*	4,107 „	Fras.
„ 2)	*Eastern margin of the plateau, 7 miles W. of Wilson's bángalo*	6,257 „	F. and S.

No. 147. HIMBIATIVÉLLI, 6° 54′; 81° 6′, in Ceylon, S.W. of Bádula.

Loc. 1)	*Mean height of the village*	4,450 ft.	F. and S.
„ 2)	*Pilgahaténne village*	3,449 „	F. and S.
„ 3)	*Namúna Kúli peak, near Pilgahaténne*	6,760 „	F. and S.
„	*ditto*	6,740 „	Tenn.
„ 4)	*Mean height of Namúna Crest*	6,081 „	F. and S.
„ 5)	*Limit of bambus on the Namúna slopes*	5,649 „	F. and S
„ 6)	*Lower limit of the forest above the grass-region*	4,864 „	F. and S.

No. 148. ATTAMPÉTTIA, 6° 54′; 81° 4′, in Ceylon, 13 miles W. of Bádula.

Loc. 1)	*Rest-house*	3,306 ft.	F. and S.
„ 2)	*Highest point of the road, 9½ miles W. of Bádula*	4,113 „	F. and S.

No. 149. BÁDULA, 6° 59′; 81° 11′, in Ceylon, 38 miles W. of Nurélia (Newerra Ellia).

Loc. 1)	*Mean height of the town*	2,450 ft.	Fras.
„ 2)	*Highest point of the road between Taldénia and Bádula*	2,345 „	F. and S

2. Bádula to Battikáloa.

No. 150. TALDÉNIA, 7° 8′; 81° 12′, in Ceylon, S.E. of Kándi.

Loc. 1)	*Rest-house*	1,000 ft.	F. and S.
„ 2)	*Level of the river at Taldénia*	887 „	F. and S.
„ 3)	*Mean height of the ridge, E. of Taldénia*	1,068 „	F. and S.

No. 151. MIGAHAKIÁLE, 7° 11′; 81° 13′, in Ceylon, 10 miles N.N.E. of Bádula.

Loc.	*Undefined*	1,077 ft.	F. and S.

No. 152. PALIAPÁTU, 7° 32′; 81° 30′, in Ceylon, N.E. of Bádula.

Loc. 1) *Mean height of the village* . . . . . 228 ft. F. and S.
„ 2) *Watershed between the Mandáre and Ulíti Ār* . . . . 430 „ F. and S.
„ 3) *Source of the Mandáre Ār* . . . . . 454 „ F. and S.

No. 153. BÁBULE, 7° 17′; 81° 19′, in Ceylon, 24 miles N.E. of Bádula.

Loc. 1) *Rest-house* . . . . . 572 ft. F. and S.
„ 2) *Kadukadapúe village* . . . . . 448 „ F. and S.
„ 3) *Ulíti Ār* . . . . . 442 „ F. and S.

No. 154. KARAVÉTTI, 7° 36′; 81° 36′, in Ceylon, 68 miles N.E. of Bádula.

Loc. *Level of the Karavétti Ār* . . . . . 101 ft. F. and S

---

3. Trinkomalí to Kándi.

No. 155. TRINKOMALÍ, or TÉRI KÚNA MÁLLI, 8° 33′·5; 81° 13′·2 ♁, in Ceylon, on the east-coast.

Loc. 1) *Fort Frederick* . . . . . 213 ft. F. and S
„ 2) *Ostenburg ridge* . . . . . 288 „ F. and S
„ 3) *Elephant ridge* . . . . . 426 „ F. and S
„ 4) *Gravel hill* . . . . . 256 „ F. and S.
„ 5) *Diamond hill* . . . . . 384 „ F. and S.

No. 156. PALAMPÓTU, 8° 31′; 81° 6′, in Ceylon, near Trinkomalí.

Loc. *Mean height of the village* . . . . . 114 ft. F. and S.

No. 157. KÁNDELE, 8° 21′; 81° 2′, in Ceylon, S.W. of Trinkomali.

Loc. *Mean height of the village* . . . . . 129 ft. F. and S.

No. 158. DASTÓTTE, 7° 56′; 81° 14′, in Ceylon, on the right bank of the Mahavélli Gánga.

Loc. 1) *Mean height of the village* . . . . . 133 ft. F. and S.
„ 2) *Ambangánga village* . . . . . 156 „ F. and S.

No. 159. Benténne, 7° 21′; 81° 11′, in Ceylon, on the right bank of the Mahavélli Gánga, N. of Bádula.

Loc. 1) *Mean height of the village* . . . . . 343 ft. F. and S.

„ 2) *First cataract of the Mahavélli Gánga* . . . . . 318 „ F. and S.

No. 160. Haboréna, 8° 2′; 81° 0′, in Ceylon, S.W. of Trinkomalí.

Loc. *Mean height of the village* . . . . . 587 ft. F. and S.

No. 161. Dámbul, 7° 53′; 80° 46′, in Ceylon, 45 miles N. of Kándi.

Loc. *Mean height of the village* . . . . . 528 ft. F. and S.

No. 162. Nallánde, 7° 42′; 80° 48′, in Ceylon, on the left bank of the Nallánde Oya Gánga, 30 miles N. of Kándi . . . . . 853 ft. F. and S.

No. 163. Máteli, 7° 32′; 80° 47′, in Ceylon, 16 miles N. of Kándi.

Loc. *Mean height of the town* . . . . . 1,187 ft. F. and S.

4. Gálle to the Adam's Peak.

No. 164. Himidún, or Haycock Hill, in Ceylon, about 10 miles S. of Gálle.

Loc. *Top of the hill* . . . . . 2,185 ft. F. and S.

No. 165. Gangodegámme, in Ceylon. . . . . 1,276 ft. F. and S.

No. 166. Ballangódde, 6° 37′; 80° 49′, in Ceylon, 82 miles S.E. of Kolómbo.

Loc. *Mean height of the village* . . . . . 1,810 ft. F. and S.

No. 167. Ratnapúra, 6° 42′; 80° 17′, in Ceylon, 56 miles S.E. of Kolómbo.

Loc. 1) *Mean height of the village* . . . . . 77 ft. F. and S.

„ 2) *Gillemálle village* . . . . . 112 „ F. and S.

No. 168. Palapatóla, 6° 44′; 80° 33′, in Ceylon, E. of Ratnapúra.

Loc. *Mean height of the village* . . . . . 1,196 ft. F. and S.

No. 169. SRIPÁDA, or ADAM'S PEAK, 6° 51′; 80° 35′, in Ceylon.

Loc. 1)	*Top of the peak*	7,385 ft.	F. and S.
„	*ditto*	7,420 „	Tenn.
„	2) *Source of the Kálu Gánga*	4,345 „	F. and S
„	3) *Diabétme bángalo; foot of Sripáda peak*	5,114 „	F. and S.
„	4) *Lower limit of Rhododendrons, on the slopes of Sripáda*	6,550 „	F. and S.

APPENDIX TO PART II.

By a careful revision of the materials, we found, in addition to the preceding, the heights of the following places, which we add to their respective Areas.

AREA I.

No. 93. Gri Peak, 28° 11′; 96° 40′, in the Mishmi territory.

Loc. *Top of the peak* . . . . . ab. 15,300 ft. Schl., A. O.

A route from the Du river to the Záyo valley, but even in summer only travelled exceptionally by the Gri-Mishmi's, passes the snow beds on its south-western slope.

No. 94. Mängeldái, 26° 24′; 92° 1′, in Assám . . . . . 155 ft. Schl., Herm.

AREA II.

No. 295. Gurgáč, 28° 28′; 77° 3′, in Hindostán, 18 miles S.W. of Déhli.

Loc. *Mean height of the town* . . . . . 817 ft. Thorn.

No. 296. Muradabád, 28° 49′; 78° 56′, in Hindostán, a large station on the right bank of the Ramgánga, near the southern foot of the Himálaya . . . 673 ft. Thorn.

No. 297. Mainpúri, 27° 14′; 79° 2′, in Hindostán, 71 miles E. of Ágra, and 165 miles S.E. of Déhli . . . . . ab. 620 ft. Thorn.

No. 298. Gorákhpur, 26° 46′·1; 83° 18′·7♁, in Hindostán, on the left bank of the Rápti, 130 miles N.W. of Dínapur . . . . . 340 ft. Thorn.

No. 299. Ramnágger, 27° 9′·9; 84° 18′·6♁, in Bengál, district of Sárun.

Loc. *Rájah's house* . . . . . 359 ft. G. T. S.

Sir Proby Cautley's "Report on the Ganges Canal Works" (3 Vols. Text, with an Atlas of 76 plans and maps), printed in 1860 for private distribution only, contains a number of places, the relative height of which he had occasion to determine by careful levellings along the various lines of the Ganges Canal. His zero-point was the Máiapur regulator, near Hardvár, at the head of the Canal, and the spot most nearly coinciding with our own determinations is the Rúrki bridge. From a private communication, kindly received from Sir Proby Cautley himself, the bed-flooring of the Rúrki bridge may be assumed as 43 feet below the entrance of the Rúrki Thomason College. The absolute height of this college, according to our observations[1], being 997 ft., that of the Rúrki bridge consequently is 954 ft., viz. (997 ft. — 43 ft. = 954 ft.) The difference of level between the Máiapur regulator and the Rúrki bridge is 61 ft.; therefore, the absolute height of Máiapur = zero-point, 1,015 ft. The zero-point thus fixed, the heights can be given in absolute values for all the levels contained in plates X., XI., and XII. of Sir Proby Cautley's Atlas.

We present, however, the principal places only, the difference of height between the intermediate, or secondary stations being extremely small.

PRINCIPAL LEVELS ALONG THE VARIOUS LINES OF THE GANGES CANAL.

The levels refer to the bed-floorings of all works.

a) *Main trunk line.*

No. 300.	Máiapur, head of the Ganges Canal	1,015 ft.	No. 308.	Chitáura Fall	867 ft.
„ 301.	Ránipur Fall	997 „	„ 309.	Salaúr Fall	845 „
„ 302.	Páttri Fall	965 „	„ 310.	Bhóla Fall	817 „
„ 303.	Rúrki Bridge	954 „	„ 311.	Dásna Fall	783 „
„ 304.	Asofnágger Fall	941 „	„ 312.	Pálra Fall	725 „
„ 305.	Máhmudpur Fall	923 „	„ 313.	Símra Fall	702 „
„ 306.	Báilra Fall	900 „	„ 314.	Kánhpur and Étava Terminal Regulator	680 „
„ 307.	Fátigárh Branch, head works	881 „			

b) *Kánhpur terminal line.*

No. 315.	Jansói Bridge	654 ft.	No. 318.	Bahósi Bridge	551 ft.
„ 316.	Pacháur Bridge	615 „	„ 319.	Barapúr Bridge	535 „
„ 317.	Kassád Bridge	584 „	„ 320.	Ranjítpur Bridge	510 „

Étava terminal line.

No. 321.	Nuh Bridge	651 ft.	No. 323.	Girór Bridge	609 ft.
No. 322.	Jáira Bridge	631 „			

[1] See p. 117: No. 26.

AREA III.

No. 123. Dúlla, 32° 25′·9; 75° 44′·4 ⏚, in the Pănjáb, Gordáspur district, near the left bank of the Rávi . . . . . 2,781 ft. G. T. S.

No. 124. Pogansír, *T. S.*, 32° 15′·4; 75° 30′·5 ⏚, in the Pănjáb, Gordáspur district, on the left bank of the Rávi . . . . . 958 ft. G. T. S.

No. 125. Mokerían, 31° 56′·9; 75° 35′·5 ⏚, in the Panjáb, Hoshiárpur district, a small cantonment.

Loc. *Station on the highest building* . . . . . 915 ft. G. T. S.

No. 126. Dásúya, 31° 49′·1; 75° 38′·2 ⏚, in the Pănjáb, Hoshiárpur district, E. of the Biás.

Loc. *Station on the bastion in the fort* . . . . . 929 ft. G. T. S.

No. 127. Gărhdiwála, *T. S.*, 31° 44′·5; 75° 44′·4 ⏚, in the Pănjáb, Hoshiárpur district, N. E. of Búdi Pind, and S.E. of Dăsúya . . . . . 1,008 ft. G. T. S.

No. 128. Búdi Pind, 31° 40′·7; 75° 40′·0 ⏚, in the Pănjáb, Hoshiárpur district, a small cantonment N.W. of Hoshiárpur.

Loc. *Top of the white house* . . . . . 862 ft. Mulh.

No. 129. Hariána, *H. S.*, 31° 38′·1; 75° 49′·5 ⏚, in the Pănjáb, Hoshiárpur district, about 10 miles N.N.W. of Hoshiárpur . . . . . 1,063 ft. G. T. S.

No. 130. Hoshiárpur, 31° 32′·2; 75° 53′·9 ⏚, in the Pănjáb, a large civil and military station, N. of Ludhiána.

Loc. *Mean height of the cantonment* . . . . . 1,066 ft. G. T. S.

No. 131. Bajvára, 31° 31′; 75° 58′, in the Pănjáb, 4 miles S. of Hoshiárpur.

Loc. *Tower Station* . . . . . 1,104 ft. G. T. S.

No. 132. Híon, *T. S.*, 31° 12′·5; 75° 58′·3 ⏚, in the Pănjáb, Jălándhăr district, S. of Hoshiárpur . . . . . 969 ft. G. T. S.

No. 133. RÁHUN, 31° 3′·2; 76° 6′·4 ♁, in the Pănjáb, Jálándhăr district, a few miles N. of the Sátlej . . . . . 1,012 ft. G. T. S.

No. 134. NARAINGÁRH, 30° 28′; 77° 7′, in Hindostán, N.E. of Ambála, and N.W. of Sidáura.

Loc. *Mean height of the village* . . . . . 2,154 ft. Herb. and Hodgs.

No. 135. SÁPAR, 30° 17′; 77° 18′, in Hindostán, between Saháranpur and Naháu.

Loc. *Mean height of the village*. . . . . 1,228 ft. Herb. and Hodgs.

PART III.

HEIGHTS DETERMINED IN THE HIMÁLAYA.

PANORAMAS AND PROFILES IN REFERENCE TO HYPSOMETRY.

An enumeration of the hypsometrical materials which we found it possible to combine with our own observations, together with the general arrangement in reference to High Asia, has been given in the introductory pages of this volume.

Here we merely add a few details about the numerous drawings of Hermann and Adolphe, which relate more especially to this and the following parts.

As we have already had occasion to mention in our first volume (p. 9), this collection consists in all of 750 views and panoramas, chiefly aquarells by Hermann and Adolphe, and including photographs of landscapes by Robert. Immediately after our return from India we arranged them in 20 groups, to which one more was subsequently added, containing the latest drawings of our poor brother Adolphe, which had been recovered through the unremitting exertions of various Indian Officers.

The groups are:

A. INDIA.

1. Panoramic views.
2. Kónkan and Western Dékhan.
3. Bengál to the Pănjáb.
4. Khássia hills and surrounding plains.
5. Central India.
6. Eastern Ghats and Karnátik.
7. Maissúr and Nilgíris.
8. Rivers.

B. INDIA AND HIGH ASIA.

9. Trees and groups of vegetation.
10. Temples, monumental buildings. European residencies.
11. Native buildings, bridges, villages, &c.

C. HIGH ASIA.

12. Panoramas from the Himálaya. Tíbet, and Turkistán.
13. Eastern Himálaya.
14. Western Himálaya.
15. Gnári Khórsum, Central Tíbet.
16. Western Tíbet and Karakorúm.
17. From Ladák, across the Karakorúm and Kuenlúen, to Turkistán.
18. Salt lakes and thermal springs.
19. Snowpeaks and glaciers.

D. OVERLAND ROUTE FROM INDIA TO EUROPE.

20. Indian Ocean to Egypt, the Mediterranean and Atlantic.

21. Last drawings of Adolphe.[1]

The panoramas from the Himálaya, Tíbet, and Turkistán (Group 12) were all taken from points commanding an extensive view, and have been used by us for various scientific purposes. Occasionally, drawings of the same range of mountains being made from different points of known position, they approximate, as it were, to a stereoscopic completeness of outline, thus allowing of the insertion in the maps of many more points than could be fixed by triangulation.

We have often been disappointed, even after ascending to considerable heights, by the character of the views to be found. These occasional drawbacks, however, were not of serious importance, as the number of points ascended, placed at our disposal a collection of views quite large enough for us to select a nearly uninterrupted south-east north-westerly succession of the snowy ranges for the entire Himálaya, as well as for some of the countries to the north of it. In general, the best geographical views could be seen from heights between 8,000 and 13,000 feet.

CHARACTERISTICS OF THE HIMÁLAYA COMPARED WITH THE ALPS.

In the Alps a similar combination, including all the principal ranges, would be still more difficult; and this, notwithstanding their small extent as compared with the Himálaya, which from Assám to Kashmír has a length equal to the distance between

[1] Though the 80 views and panoramas accompanying this work are most carefully selected, yet we cannot but remain impressed with the lively desire to make the entire series generally known. After numerous experiments, it appeared to us that photography, combined with colour-printing, was the method best adapted for the end in view. From the great number composing the entire series, however, and especially from the circumstance that such tinted photographs would be deprived of much of their value, if not rigorously reproduced as facsimiles, though on a reduced scale, we are afraid that the proposed edition must be limited to a small number of copies. A few proofs have already been sent to India, and there, as in England, they have been received with unusual interest. (See "Journal of the Asiatic Society of Bengál," 1860, No. I., p. 73.)

Greece and Spain. Even where, in the Alps, an unusual extent of snowy peaks is contained in one panorama (as, for instance, the view from Piz Languard, in the Engadin), the principal groups of snowy ranges are generally separated by wide intervals, and the difference of height between the loftiest peaks and the deepest parts of the valleys in sight is not to be compared with the respective scenery in the Himálaya.

Another superiority lies in the atmospheric conditions of the Himálaya, which are much more favourable than those of the Alps. The regularity of the different seasons offers the greatest probability of uninterrupted fine weather for many months, and even during the rainy season the same may often be said of the diurnal period in the Eastern Himálaya. When Hermann was staying in this part of the country during the height of the rains, he found the view was nearly always clear and fine in the earliest hours of the morning.

EMPLOYMENT OF SCALES IN DRAWING THE PANORAMAS.

In drawing these panoramas, a unity of linear measure was made to correspond to a constant value of angular measure. As we used a cyclic projection, the scale was necessarily the same for both horizontal and vertical angles throughout the picture.

As many of the peaks were very distant, they presented themselves under small angles, and the scale adopted had therefore to be taken rather large, in order not to exclude the lesser details, which were generally of great importance in the case of minute or distant objects.

As a rule the scale adopted was:

1 or 2 centimetres = 1°, making the circumference of 180° = 1·8 or 3·6 metres (= 5·9 or 11·8 feet) in length.

The immediate combination of our measurements with the drawings had the great advantage of accelerating, even in the large scale used, the correct laying down of the outlines, of more accurately defining the individual character of each object, and, amongst other consequences, of giving as immediate result the correct inclination of the mountains, naturally modified at the same time by the known rules of perspective.[1]

[1] We postpone details of the inclinations, and their connection with various geological questions, the effects of erosion, glacial phenomena, &c., to the Vol. of Geology.

Our drawing paper was always prepared beforehand, the several sheets being pasted together, and mounted on cloth. It was then carried as a roll, and the size required cut off upon the spot.[1]

As not hours only, but days were consumed in drawing and painting a panorama of large size, we had to exercise great care in keeping the illumination uniform for the entire extent. It is a natural consequence of the cyclic projection employed, that the shadows cannot remain parallel to the eye throughout; they show, on the contrary, a radial divergency. At first the effect may be rather strange; but any unnatural expression at once disappears, if the sheet be bent in a curve corresponding to so much of the circumference of a circle as is represented by the number of degrees included in the panorama. Such a position, demanded as it is by the principles employed in the mode of drawing here adopted, is naturally the one most favourable for reproducing the correct impression.

PANORAMIC PROFILES.

Our Atlas of panoramas and views contains some of the larger panoramas in oil-print. In our selection we have chiefly produced those which were most characteristic for the different modifications of scenery. Some of the panoramas, which included, at the same time, the greatest number of geographical details, have been reduced and formed into a collection of *Panoramic Profiles*, to be added to the present volume, and we may hope, perhaps, that their combination, hitherto a novelty of the kind, will prove useful in completing the orographical tableau of the Himálaya and Tíbet.

In order to deviate as little as possible from the original size, we generally selected for representation in profile that part of the panorama only which contained the snowy ranges; the reduction used is consequently variable, but a scale has been added for each of them. In the *oil-prints*, however, the entire view is given.

In the profiles, the principal objects, the snowy peaks, are reproduced in full detail and with their various modifications of form. In the middle ground, as far as we found it necessary for completing the general geographical character of the picture, we distinguish distances by modifications of shading.

[1] At first we tried the Wattman paper in loose sheets, but it did not take long to fully appreciate the inconvenience of using unmounted paper, and of pasting together on the road the single pieces for the length required.

DIAGRAMS ADDED TO THE PANORAMIC PROFILES.

A plan of *geographical positions* is added to each plate, combining two panoramas on the scale of 32 miles to the inch.

Care has been taken to make the central meridional line vertical, but the variation arising from the geographical network of latitude and longitude occasions some differences between the angles of bearings in nature and those on the plan, though indeed they are not important, and chiefly occur in the lateral parts. In the centre another little difficulty has arisen, modifying the *absolute* coincidence of the bearings in the plan with those on the panorama. It was found impossible to avoid an occasional slight change of the eye-station when drawing, in order to obtain the most favourable conditions for a foreground, the position of a theodolite which only needs perfect freedom in every direction, not always coinciding with the eye-station necessary for a drawing. However, with a little management, the differences have been reduced, so as to be hardly appreciable. To peaks not visible from the eye-station no line of bearing is drawn.

Two *hypsometrical diagrams* are inserted on either side of the plan. The peaks follow each other in the order of their longitude, differences of latitude altogether disappearing on this projection. In these diagrams, peaks not visible from the eye-station are distinguished by dotted lines. The vertical scale is 1 to 60,000, or 5,000 ft. to the inch, the levels not commencing before 10,000 ft., in consequence of the employment of so large a scale.

Where the succession of the peaks was chiefly longitudinal (from east to west), we retained the scale of 32 miles to the inch, but in cases where the general succession was more diagonal, we employed a larger scale for the differences of longitude, in order to avoid an unnecessary crowding of heights within a small space.

DESIGNATION OF PEAKS.

We must also draw attention to a circumstance already alluded to, pp. 66 and 67 of this volume, where we explained the method of nomenclature adopted in distinguishing the different peaks. The necessity of finding proper names for the various objects is not only of importance for trigonometrical operations in general, but also for every geographical detail. In most cases little difficulty was experienced, and

more especially so when the peak was an isolated one. For larger groups, we could not do better than add the sign adopted by the Great Trigonometrical Survey to the name of the group which we have adopted.

In such cases we write thus:

SANKÓSI PEAK No. XVII. ♆

Sankósi is the name employed by us for several peaks of the same group (see Area VII. Nos. 199 to 203). Peak No. XVII. ♆ is the designation given to this particular peak by the G. T. S. As the latitude and longitude for each peak is added, we consider it unnecessary to give as well the *series* of the G. T. S. to which this number or sign is referred.

Also in cases where the peak has a well defined and known name, we add in brackets the sign or number with which it is designated by the G. T. S.

For peaks measured by previous observers independently of each other, especially for those of Kămáon and Gărhwál, a careful revision and examination of existing materials enabled us in most cases to identify them, and to each peak will be found attached the observer's mark and the values of the geographical co-ordinates as obtained by him.

AREA VII.

HIMÁLAYA OF BHUTÁN, SÍKKIM, AND NEPÁL.

Longitudinal, from east to west: from Bhután in the direction of Darjíling, to the western border of Nepál.

This area begins in the longitude of the upper end of the Assám valley, and being continued to the left bank of the Káli-Sárju, or Ghógra river, it consequently includes Bhután, Síkkim, and Nepál, as well as the few isolated heights hitherto measured to the north of the eastern Himálaya.

By far the greater number of the loftiest peaks as yet determined are situated within these regions. Although Turner's visit to Bhután in 1783 had called general attention to the existence of heights till then unrivalled, it was only in 1816 that Colebroke, then President of the Asiatic Society of Bengál, could consider himself authorized "to make an unreserved declaration of the opinion, that the Himálaya is the loftiest range of Alpine mountains which has been yet noticed, its most elevated peaks greatly exceeding the highest of the Andes."[1]

More recently, owing to the rapid progress of the G. T. S. under Sir A. Waugh, many valuable determinations have been furnished for the Himálaya, and considerable additions made to our knowledge of its eastern regions by the special labours of Campbell, Hodgson, and Sherwill, and more particularly by the well known work of Hooker.

In our division of the countries to be respectively examined by us, the eastern Himálaya was allotted to Hermann. Both in Síkkim and Nepál many unexpected difficulties, mostly of a political nature, frequently limited my choice of routes,[2] and

[1] Asiatic Researches, 1816, Vol. 12, p. 252. [2] See Vol. I., p. 16.

naturally reduced the number of barometrical determinations. I was, however, fortunate in finding many very favourable points for trigonometrical operations.

In *Sikkim*, during a stay of two months on the Singhalíla ridge, at an average height of about 12,000 feet, I had the opportunity of seeing the summits of mountains exceeding 28,000 feet; they were only some thirty miles distant, and the grandeur of their appearance corresponded with the stupendous altitude of the snow clad peaks. I could also look down into the valleys of the Támbur, Mái, Rángít, and Tísta, upon places of only 1,500 to 1,800 feet of absolute height. With respect to the topographical terminology of these parts, I had tolerably good reason for relying upon the information of my native companions, and particularly of the Lépchas.[1]

I may here allude to the "Map of equi-distant horizontal contour lines" in the geographical part of our Atlas. The lines of this map are given in horizontal sections from 500 to 500 feet. As communicated in my official "Report No. 3, on the progress of the Magnetic Survey of India," Calcutta, 1856, the original is made on the scale of three inches to two miles, or in the proportion of 1 to 42,240; and in its construction I used a portable levelling instrument, consisting of a divided wheel and diopter. With these measurements were combined the determination of inclination of slopes by a very delicate clinometer.

The latter process being of material assistance, in cases where the point to be determined is not easily accessible (from want of roads, and more especially from the obstacles offered by the luxuriant vegetation), I may, perhaps, explain in a few words the method of deducing from the inclinations the form of the lines required.

The horizontal projection (P) of an unity of vertical height (500 feet in the present case) varies with the inclination of the surface (μ), being the cotangent of the angle of inclination, multiplied by the height taken as standard ($P =$ cotan $\mu \times 500$).

Beginning therefore at a point, the height of which is known and coincides with an exact multiple of 500 feet, the projection in the map of the next point, 500 feet higher, can be deduced from the formula above mentioned.

The following table which I have calculated contains, in decimals of an inch, from 10 to 10 degrees, the values of P, reduced to the proportion of 1 to 42,240.

[1] I had with me natives from a great variety of tribes, Górkhas, Kerántis, and Neváris from Nepál, and Límbus, Lépchas, and Bhútias from Sikkim, besides my Indian establishment.

Inclination = μ	log cotan μ	Horizontal distance of two contour lines in the map. Inches
°		
10	0·7537	0·806
20	0·4389	0·390
30	0·2386	0·246
40	0·0762	0·169
50	9·9238	0·119

The points with which the steps from 500 to 500 feet coincided being found on the different slopes, their combination gives the equi-distant contour lines as immediate result.

In *Nepál*, after having obtained the official permission to visit it with my assistant and scientific apparatus, I met with a very kind reception, and through Colonel Ramsay's diplomatic exertions was enabled to procure much valuable geographical information, some of which was even supplied to me by the Maharájah Jhăng Bahádur himself. The latter assisted me more particularly in well defining the peaks, and furnished me with some rudely executed, but very interesting native maps.

I may still mention, as not altogether without importance, that by the results obtained from many of my Nepalese stations, I was able directly to connect my measurements and drawings with peaks and points also measured and drawn by me in Síkkim.

No. 1. Eastern Dal-la, 27° 52′·1; 92° 38′·6 E, in Bhután, in the immediate vicinity of the Giants' peak.

Loc. *Top of the peak* . . . . . 21,435 ft. Schl., Herm.

„ *ditto* . . . . . 21,476 „ Pemb.

The Giants' peak and the Eastern Dal-la are the peaks occasionally mentioned to me under the name "Gemini" by residents of Assám who had seen the Himálaya panorama from Naukláu in the Khássia hills. Schl., Herm.

No. 2. Dal-la, or Giants' Peak, 27° 50′; 92° 34′, in Bhután, N. of Táuong.

Loc. *Top of the peak* . . . . . 22,495 ft. Schl., Herm.

Trigonometrically measured from Gohátti.

This peak is the prominent feature in the Himálaya panorama of Central Assám. The name "Giants' Peak" is the one adopted by the English residents in Assám. It is called "Dal-la" on a native Bhútia map from Táuong to Lhássa, which we have in our possession. The height of 21,600 ft. given by Pemberton, seems to refer to this peak. Schl., Herm.

No. 3. Théme-ri Peak, 27° 48′·7; 92° 28′·5卩, in Bhután, W. of the Giants' peak.

Loc. *Top of the peak* . . . . . 20,480 ft. Schl., Herm.

Trigonometrically measured from Gohátti.

Though I could not obtain a positive name for this peak from the natives, the designation adopted seemed to me, nevertheless, pretty well to define it. Schl., Herm.

No. 4. Pashnái Ghát, 26° 42′; 92° 24′, in the Bhután-Tarái, E. of the village Órang.

Loc. 1) *Mean height of the plain at the outlet of the river from the Tarái* . . . . . 220 ft. Schl., Herm.

1, Greiner. 1856, Jan. 20, 6^h P.M. *A.* 29·890; 68·9. Gohátti 29·981; 65·2.

„ 2) *Level of the Pashnái* . . . . . 214 ft. Schl., Herm.

No. 5. Oámla Peak, 27° 36′; 92° 7′, in Bhután, N.E. of Taúong.

Loc. *Top of the peak* . . . . . 22,430 ft. Schl., Herm.

This peak, measured from Tezpur, is also mentioned on our native Bhútia map as a prominent object on the road from Táuong to Lhássa. Schl., Herm.

No. 6. Chómo-la Mountain, 26° 56′; 92° 7′, in Bhután, 2½ miles distant from Nárigún, on the left side of the road descending from Táuong. . . . . 8,105 ft. Schl., Herm.

Trigonometrically measured from Nárigún.

No. 7. Nárigún, 26° 53′·8; 92° 6′·0卩, in Bhután, an important place, the residency of a Láma governor, on the Lhássa road viâ Táuong.

Loc. 1) *Base of the large prayer wall* . . . . . 3,642 ft. Schl., Herm.

1, Greiner. 1856, Jan. 9, 10^h A.M. *A.* 26·437; 41·0. Gohátti 30·027; 63·5 = 3,626 ft.

„ „ „ 11, 10^h „ „ 26·418; 51·4 „ 30·007; 60·5 = 3,657 „

Loc. 2) *Level of the Ri-chu* . . . . . 3,590 ft. Schl., Herm.

52 ft. below the prayer wall; direct measurement.

The river near Nárigún is called sometimes Amartá-chu, sometimes Nárigún-chu; but the name used in preference is Ri-chu, meaning the mountain stream. The name Amartá-chu is in general only given to the stream after the junction of the Ri-chu and Báishma-chu. Schl., Herm.

Loc. 3) *Position of the magnetic instruments* . . . . . 3,615 ft. Schl., Herm.

25 ft. above the Ri-chu; by direct measurement.

No. 8. BOGAGÁŬ, 26° 47′; 92° 4′, in Bhután, a village below Nárigún.

Loc. 1) *Mean height of the village* . . . . . 2,189 ft. Schl., Herm.

1, Greiner. 1856, Jan. 14, 10h 10m A.M. 27 871; 50 5; 85. Gohátti 30·010; 62·1; 90.

„ 2) *Level of the river at Bogagáŭ* . . . . . 2,179 ft. Schl., Herm.

„ 3) *Halting place of the Bhútias, in the valley above Bogagáŭ* 2,208 „ Schl., Herm.

„ 4) *Enlargement of the valley a short distance below Bogagáŭ* 2,019 „ Schl., Herm.

= 170 ft. below Bogagáŭ; by aneroid.

No. 9. AMARTÁL, 26° 43′; 92° 3′, in Bhután, a village on the upper border of the Bhután-Tarái.

Loc. *Lower part of the village, 9½ feet above the river* . . . 1,020 ft. Schl, Herm

1, Greiner. 1856, Jan. 15, 1h 15m P.M. *A.* 29 024; 54 9; 75. Gohátti 29 963; 63 8; 89.

No. 10. TASSGÓNG PEAK, 27° 16′·5; 91° 52′·6⊢, in Bhután, the next high peak to Tassgóng castle in the direction E. by N., visible from the northern border of Assám.

Loc. *Top of the peak* . . . . . ab. 14,000 ft. Schl., A. O

No. 11. BÄR PAHÁR, 26° 53′; 91° 48′, in Bhután, a peak about equally distant from Nárigún and Devangíri, above the sources of the Jía Bär . . . . . 12,500 ft. Schl, A. O

Visible in Assám; measured from Desh Dárrang.

No. 12. TASSGÓNG CASTLE, 27° 20′; 91° 38′, in Bhután Monás valley. The castle is built on a rock, on the left bank of the river, the village a little above the river.

Loc. *Castle* . . . . . 3,182 ft. Pemb.

No. 13. TÁLLUNG, 27° 29′; 91° 37′, in Bhután, Kúlong valley, a village consisting of several groups of houses, partly built on the river, partly on a terrace to the left of it.

Loc. *Houses on the terrace* . . . . . 5,929 ft. Pemb.

No. 14. RUNGKÓNG TEMPLE, 27° 15′; 91° 36′, in Bhután, on the crest separating the Jhíri and Monár . . . . . ab. 8,300 ft. Schl, A. O.

No. 15. RAIDÁNG MOUNTAIN, 26° 58′; 91° 34′, in Bhután, near the village of Raidáng, on the right bank of the Múru . . . . . ab. 7,000 ft. Schl., A. O.

No. 16. Bulfái, 27° 13′; 91° 34′, in Bhután, Jhíri valley 6,804 ft. Pemb.

No. 17. Tassángsi Castle, 27° 34′; 91° 33′, in Bhután, Kúlong valley.
Loc. *Castle of the Súbah* . . . . . 5,387 ft. Pemb.

No. 18. Devangíri, 26° 51′; 91° 30′, in Bhután, in the outer ranges of the Himálaya, on the left bank of the Múru.
Loc. *Residence of the Devangíri Rájah* . . . . . 2,150 ft. Pemb.

No. 19. Sási, 27° 8′; 91° 29′, in Bhután, near the junction of the Thémeri and Jhíri.
Loc. *Mean height of the village* . . . . . 4,325 ft. Pemb.

No. 20. Línje Village, 27° 36′; 91° 16′, in Bhután, on a slope to the left of the Kúri.
Loc. *Undefined* . . . . . 6,336 ft. Pemb.

No. 21. Lenglúng Castle, 27° 39′; 91° 12′, in Bhután, on the Kúri.
Loc. *Undefined* . . . . . 4,523 ft. Pemb.

No. 22. Sasúka Pass, 27° 46′; 90° 48′, in Bhután, on the road from Jágger viâ Dáru to Lhássa . . . . . 12,335 ft. Pemb.

No. 23. Bumdangtáng, 27° 36′; 90° 47′, in Bhután, on the Tang.
Loc. *Undefined* . . . . . 8,668 ft. Pemb.

No. 24. Jággăr Castle, 27° 32′; 90° 37′, in Bhután, on the right bank of the Sámkat.
Loc. *Castle of the Súbah* . . . . . 8,149 ft. Pemb.

No. 25. Tóngso Castle, 27° 30′; 90° 19′, in Bhután, on the right bank of the Matisúm.
Loc. *Castle* . . . . . 6,527 ft. Pemb.

No. 26. Santagáŭ, 27° 31′; 89° 44′, in Bhután, 11 miles S.E. of Punáka.
Loc. *Undefined* . . . . . 6,325 ft. Pemb.

No. 27. PHÁEN, 27° 29′; 89° 39′, in Bhután, 8 miles S.E. of Punákha.

Loc. *Mean height of the village* . . . . . 5,279 ft. Pemb.

No. 28. TAGÚNA FORT, 26° 59′; 89° 38′, in Bhután, 10 miles N.N.E. of the Gádđáda valley . . . . . 3,783 ft. Pemb.

No. 29. PUNÁKHA CASTLE, 27° 35′; 89° 34′, in Bhután, at the junction of the Ma-chu and Pa-chu . . . . . 3,739 ft. Pemb.

No. 30. PUSÁKHA, or BÁKSA DUÁR, 26° 48′; 89° 31′, one of the principal passes leading into Bhután . . . . . 1,809 ft. Pemb.

Similar secondary passes are crossed in many parts of the outer ranges of the Himálaya, in order to avoid routes which, either from the marshy ground of the Tarái, or the steep erosion of the rivers, present too many difficulties. Schl., Herm.

No. 31. CHÚPCHA, 27° 11′; 89° 17′, in Bhután, on the left bank of the Gádđáda.

Loc. *Mean height of the village* . . . . . 7,984 ft. Pemb.

No. 32. CHAMALHÁRI PEAK (No. I. ⊼), 27° 49′·7; 89° 15′·3, in Bhután.

Loc. *Top of the peak* . . . . . 23,944 ft. G. T. S.

In the Fálút panorama its distance is 77¼ miles. This summit is a remarkably well defined conical prominence with a flattened top, steeper on its eastern than on its western slopes. Its Lépcha name is Rímyet-rim-Sáchu; for its signification see the Glossary in Vol. III. Schl., Herm.

No. 33. CHÓRA PEAK, 27° 42′·2; 89° 14′·5 ⊨, in Bhután, above the village Chóra.

Loc. *Top of the peak* . . . . . 22,720 ft. Schl., Herm.

This peak, measured from Nankláu, is situated on the spur which descends from the Chamalhári peak to the south towards Tassisúdon.

Another high peak, situated 1° 29′ E. of Chamalhári, was only visible from the western end of the Nankláu base. Schl., Herm.

No. 34. TÁNKRA PASS, 27° 37′; 88° 54′, on the Síkkim-Bhután frontier, leading from Síkkim into Bhután . . . . . 16,083 ft. Hook.

No. 35. GIPMÓCHI PEAK, 27° 17′; 88° 53′, in Bhután . 14,509 ft. G. T. S.

This peak, the most eastern prominent object in the snowy range seen from Fálút, is free from snow during the warmest months. The chain to its left, now (June, 1855) still covered with

a thick stratum of snow, is the left side of the Ríngpo river, and the crest descending below it to the right is the ridge separating the Ríngpo from the Tísta valley. Schl., Herm.

No. 36. △ LÁCHI-PIÁ, 27° 40′; 88° 51′, in Síkkim, a halting place at the southern foot of the Tánkra peak . . . . . 15,262 ft. Hook.

No. 37. FORKED DÓNKIA PEAK, 27° 52′; 88° 51′, on the Síkkim-Bhután frontier.

Loc. *Top of the peak* . . . . . 20,870 ft. G. T. S.

In the Fálút panorama it seems to be concealed by one of the ridges, which are less distant.

No. 38. TÁNKRA PEAK, 27° 45′; 88° 50′, in Síkkim, 7 miles N.E. of the Láchung valley.

Loc. *Top of the peak* . . . . . 18,250 ft. Hook.

This peak is visible from Darjíling. Schl., Herm.

No. 39. PAUHÁNRI, or DÓNKIA PEAK (No. III. ☩), 27° 57′·0; 88° 49′·7, on the Síkkim-Tíbet frontier.

Loc. 1) *Top of the peak* . . . . . 23,136 ft. G. T. S.

In the Fálút panorama the distance is 71 miles; the peak presents itself as a very powerful pyramid, with a sharp point. Schl., Herm.

Loc. 2) *Southern shoulder of the Dónkia peak* . . . . . 18,307 ft. Hook.

„ 3) *Western shoulder of the Dónkia peak* . . . . . 18,510 „ Hook.

No. 40. CHÓLA PASS, 27° 25′; 88° 49′, on the Bhután-Síkkim frontier, leading from the Tísta river system into that of the Ma-chu . . . . . 14,925 ft. Hook.

In the Fálút panorama the depression of the pass is visible, but its lowest point, the pass itself, is concealed by parallax; the pass is considerably lower than the general crest of the snowy range. Schl., Herm.

No. 41. CHÓLA MOUNTAIN, 27° 27′; 88° 47′, on the Síkkim-Bhután frontier.

Loc. *Top of the mountain* . . . . . 17,319 ft. G. T. S.

Visible in the Fálút panorama to the right of the Chóla pass. Schl., Herm.

No. 42. DÓNKIA PASS, 27° 59′; 88° 47′, in Síkkim, on a spur of the Dónkia mountain . . . . . 18,488 ft. Hook.

No. 43. CHOLÁMU LAKE, 28° 0′; 88° 47′, in Díngtsam, a province of Eastern Tíbet, at the foot of the Dónkia peak.

Loc. *Broad plain surrounding the lake* . . . . . 16,900 ft. Hook.

No. 44. △ CHAMANÁKO, 27° 24′; 88° 46′, in Síkkim, a halting place on the road leading over the Chóla pass . . . . . 12,590 ft. Hook.

No. 45. GUAREÁM, or BLACK ROCK PEAK, 27° 35′; 88° 45′, in Síkkim.

Loc. *Top of the peak* . . . . . 17,556 ft. G. T. S.

In the Fálút panorama it has a rather broad upper margin, with a double pyramid on its top. Schl., Herm.

No. 46. LÁCHUNG, 27° 42′; 88° 45′, in Síkkim, a village on the left bank of the Láchung, which is the most eastern of the principal affluents of the Tísta . 8,630 ft. Hook.

No. 47. △ MOMÁI SÁMDONG, 27° 52′; 88° 44′, in Síkkim, at the confluence of numerous streams descending from the glaciers of the Kinchinjháu and Dónkia systems.

Loc. 1) *Camp* . . . . . 15,215 ft. Hook.

„ 2) *Mountain N. of the village* . . . . . 17,394 „ Hook.

No. 48. △ BARFÓNCHEN, 27° 24′; 88° 44′, in Síkkim, a halting place on the road leading over the Chóla pass . . . . . 11,233 ft. Hook

No. 49. FIÖNGÚNG, 27° 25′; 88° 43′, in Síkkim, a lofty step on the road over the Chóla pass . . . . . 12,423 ft. Hook.

No. 50. YÖMTÓNG, 27° 46′; 88° 43′, in Síkkim, a small summer cattle station, on a flat formed by the Láchung.

Loc. 1) *Flat equally high on both sides of the river* . . . . 11,904 ft. Hook.

„ 2) *Snow-bed above Yömtóng* . . . . . 15,985 „ Hook.

„ 3) *Hot springs (Temp. 112°·6 Fahr.), 1 mile below Yömtóng* . . . . . 11,730 „ Hook.

„ 4) *Bas névé and snow bridges in August* . . . . . 12,500 „ Hook

„ 5) *Limit of silver firs* . . . . . 13,000 „ Hook.

„ 6) *Lower end of the Chángo Khang glacier* . . . . . 14,000 „ Hook.

Loc. 7) *Limit of oaks* . . . . . 9,000 ft. Hook.

„ 8) △ *Panging, a halting place near Yömtóng* . . . . . 11,299 „ Hook.

No. 51. Tómo Chámo Peak, 27° 56′; 88° 43′, in Síkkim, the eastern summit of the Kinchinjháu massif . . . . . ab. 21,000 ft. Hook.

The upper part of this peak also presented itself so flat in the Fálút panorama, that the proper summit is not visible. Schl., Herm.

No. 52. Laghép, 27° 25′; 88° 41′, in Síkkim, a small stone house on the road over the Chóla pass . . . . . 10,423 ft. Hook.

No. 53. Kinchinjháu Massif, 27° 56′; 88° 40′, in Síkkim.

Loc. 1) *Highest peak of the massif* . . . . . 22,750 ft. G. T. S.

In the Fálút panorama, the highest peak is hardly visible, but the general elevation of this powerful group forms a prominent object. Schl., Herm.

Loc. 2) *Hot springs, about a mile below the Kinchinjháu glacier* 16,000 ft. Hook.

No. 54. △ Yeúmtso, 28° 2′; 88° 40′, in Síkkim, a large flat, N. of the Kóngra Láma pass, with many small lakes.

Loc. *Cattle pen at the eastern border* . . . . . 16,808 ft. Hook.

No. 55. Bhómtso Peak, 28° 6′; 88° 40′, in Díngtsam, a province of Eastern Tíbet, N. of Síkkim . . . . . 18,590 ft. Hook.

No. 56. Sebóla Pass, 27° 50′; 88° 38′, in Síkkim, leading over the northern shoulder of the Changokháng peak from the Láching into the Láchen valley . . 17,585 ft. Hook.

No. 57. Chàngokháng Peak, 27° 53′; 88° 38′, in Síkkim 20,600 ft. Hook.

The name of this peak, which dominates the Sebóla pass, means "Eagles' crag". Schl., Herm.

No. 58. Ránkpo, 27° 24′; 88° 37′, in Síkkim, a village with a rest-house at the foot of the ascent to Fámlong, on the right bank of the Ráiot . . . . . 6,008 ft. Hook.

No. 59. △ PÁLUNG, 27° 55′; 88° 37′, in Síkkim, an elevated grassy expanse at the foot of Kinchinjháu, with large ancient moraines.

Loc. 1) *Mean height of the plain* . . . . . 16,000 ft. Hook.
„ 2) *Dr. Hooker's encamping place* . . . . . 15,697 „ Hook.

No. 60. △ CHÁKUNG, 27° 33′; 88° 36′, in Síkkim, a halting place with grass huts on the left bank of the Tísta.

Loc. *Bottom of the valley* . . . . . 3,407 ft. Hook.

No. 61. CHÚNGTAM, 27° 37′; 88° 36′, in Síkkim, a village near the junction of the Tísta and Láchung.

Loc. 1) *Mean height of the village* . . . . . 5,268 ft. Hook.
„ 2) *Level of the Láchung at Chúngtam* . . . . . 4,968 „ Hook.
„ 3) *Lower limit of the Yew tree* . . . . . 7,000 „ Hook.
„ 4) *Lower limit of "Abies Brunoniana"* . . . . . 8,000 „ Hook

No. 62. TÁKCHÁM, 27° 21′; 88° 35′, in Síkkim, a village 6 miles S. of Támlung in a straight line . . . . . 3,849 ft. Hook.

No. 63. △ YÉUNGA, 27° 48′; 88° 35′, in Síkkim, a halting place 3 miles N. of the junction of the Láchen and Zímu . . . . . 10,196 ft. Hook.

No. 64. TÁLLUM SÁMDONG, 27° 50′; 88° 35′, in Síkkim, a village on the left bank of the Láchen, consisting only of a few stone huts . . . . . 11,482 ft. Hook.

No. 65. DÍKILING, 27° 15′; 88° 34′, in Síkkim, a large settlement of Dhárma Bhútias, 5 miles N.E. of the junction of the Rángpo and Tísta.

Loc. 1) *Mean height of the settlement* . . . . . 4,952 ft. Hook
„ 2) *Síngdong, a settlement 3 miles lower down* . . . . . 2,116 „ Hook.

No. 66. TIKBOTÁNG, 27° 19′; 88° 34′, in Síkkim, a village on the Rángnu, an affluent of the Tísta.

Loc. 1) *Village* . . . . . 3,762 ft. Hook.
„ 2) △ *Gángtok Sampú, some miles lower down* . . . . . 2,952 „ Hook.
„ 3) △ *Seriómso* . . . . . 2,820 „ Hook.

No. 67. TÁMLUNG, 27° 25′; 88° 34′, in Síkkim, the capital of this province, on a hill on the left bank of the Tísta.

Loc. 1) *Lower part of the town* . . . . . 5,368 ft. Hook.
„ 2) *Upper part of the town* . . . . . 5,976 „ Hook.
„ 3) *Fadóng temple, S.W. of Támlung* . . . . . 5,946 „ Hook.

No. 68. NÁMGA, 27° 32′; 88° 34′, in Síkkim, on the left bank of the Tísta, on a spur a little above Nióng . . . . . 4,229 ft. Hook.

No. 69. △ DHÓLEP LÁCHEN, 27° 38′; 88° 34′, in Síkkim, a halting place on the right bank of the Tísta . . . . . 6,132 ft. Hook.

No. 70. △ LÁTONG, 27° 42′; 88° 34′, in Síkkim, a halting place on the left bank of the Tísta . . . . . 6,390 ft. Hook.

No. 71. △ KÁMPO SÁMDONG, 27° 45′; 88° 34′, in Síkkim, name of the junction of the Láchen and a small lateral river from the left . . . . . 7,329 ft. Hook.

No. 72. △ TÁNGU, 27° 53′; 88° 34′, in Síkkim, the name of the junction of the Láchen and Tángu . . . . . 12,762 ft. Hook.

No. 73. YANKÚNG, 27° 23′; 88° 33′, in Síkkim, a village near the left bank of the Tísta, 4 miles distant from the river . . . . . 3,867 ft. Hook.

No. 74. NIÓNG, 27° 32′; 88° 33′, in Síkkim, a village on the left bank of the Tísta, 3½ miles N.E. of Síngtam . . . . . 3,954 ft. Hook.

No. 75. △ DÉNGHA, 27° 41′; 88° 33′, in Síkkim, a halting place on the right bank of the Tísta . . . . . 6,368 ft. Hook.

No. 76. LÁMTENG, 27° 45′; 88° 33′, in Síkkim, a village of about 40 houses, only inhabited in winter, the shepherds with their flocks being in Tíbet during the summer.

Loc. *Undefined* . . . . . 8,883 ft. Hook.

No. 77. ZÍMU SÁMDONG, 27° 46′; 88° 33′, in Síkkim, junction of the Láchen and Zímu:

Loc. 1) *Level of the confluence* . . . . . 8,976 ft. Hook.

„ 2) *Bas névé, forming a snow bridge across the Zímu in June* (1849) . . . . . 9,828 „ Hook.

No. 78. SITTÓNG, 27° 58′; 88° 33′, in Síkkim, at the foot of the Kóngra Láma pass.

Loc. *Lower end of the rocky glen* . . . . . 15,372 ft. Hook.

No. 79. KÓNGRA LÁMA PASS, 27° 59′; 88° 33′, in Síkkim, leading over a spur of the Kinchinjháu.

Loc. 1) *Top of the pass* . . . . . 15,693 ft. Hook

This pass only leads from a lower to a higher part of the same valley, to avoid the difficulties presenting themselves along the course of the river. Schl., Herm.

Loc. 2) *Upper limit of "Ephedra vulgaris"* . . . . . 17,000 ft. Hook.

No. 80. CHÁTENG, 27° 45′; 88° 32′, in Síkkim, eastern termination of a spur descending from the Tăkchám peak.

Loc. 1) *Small pool on its summit* . . . . . 8,757 ft. Hook.

„ 2) *Upper limit of "Marlea"* . . . . . 8,500 „ Hook.

This is the greatest elevation attained by sub-tropical tree vegetation in the interior of Síkkim.

No. 81. SINGTÁM, 27° 31′; 88° 31′, in Síkkim, a village in the great bend of the Tísta. 10 miles N.W. of Támlung. . . . . 4,456 ft. Hook.

No. 82. CHOMIOMÓ PEAK, 28° 1′; 88° 31′, on the Síkkim-Tíbet frontier, S.E. of Bhómtso.

Loc. *Top of the peak* . . . . . 22,700 ft. Hook.

No. 83. TĂKCHÁM PEAK, 27° 44′; 88° 30′, in Síkkim, a snow peak surrounded by a great accumulation of glaciers on the right bank of the Tísta, 5 miles S.W. of the junction of the Láchen and Zímu.

Loc. 1) *Top of the peak* . . . . . 19,473 ft. Hook

„ 2) *Lower limit of the glaciers* . . . . . 14,000 „ Hook.

No. 84. BHOMSÓNG, 27° 21′; 88° 29′, in Síkkim, on the right bank of the Tísta, 8 miles E. of the Máinom mountain.

Loc. *Undefined* . . . . . 1,544 ft. Hook.

No. 85. KÉADOM, 27° 24′; 88° 29′, in Síkkim, a village on the right bank of the Tísta, nearly opposite Támlung, the capital of Síkkim . . . . . 6,609 ft. Hook.

No. 86. GORH, 27° 27′; 88° 29′, in Síkkim, a village on the right bank of the Tísta. Loc. *Mean height of the village* . . . . . 4,128 ft. Hook.

No. 87. BLINGBÓNG, 27° 29′; 88° 29′, in Síkkim, a village on the right bank of the Tísta, 3 miles N. of Gorh . . . . . 2,684 ft. Hook.

No. 88. LÍNGO, 27° 31′; 88° 29′, in Síkkim, a village on the right bank of the Tísta, 1½ mile below its junction with the Rangiáng . . . . . 2,781 ft. Hook.

No. 89. CHEADÁM, 27° 9′; 88° 28′, in Síkkim, a village on a ridge separating the Tísta and Rängít, 4 miles from their junction . . . . . 4,653 ft. Hook.

No. 90. KÁTONG GHÁT, 27° 12′; 88° 28′, in Síkkim, 3 miles above the junction of the Tísta and Ríngpo . . . . . 735 ft. Hook.

No. 91. LINGMÓ, 27° 19′; 88° 28′, in Síkkim, a village on the right bank of the Tísta, 2 miles above the junction with the Brum . . . . . 2,849 ft. Hook.

No. 92. LÍNGTAM SPUR, 27° 31′; 88° 28′, in Síkkim, near the junction of the Rangjáng and the Tísta . . . . . 4,805 ft. Hook.

Nos. 93-5. PANDÍM PEAKS, in Síkkim.

No. 93. PANDÍM PEAK *D* 3 ♁, 27° 44′; 88° 28′ . . . . . 19,244 ft. G. T. S.

No. 94. PANDÍM PEAK *D* 2 ♁, 27° 42′; 88° 18′ . . . . . 22,581 ft. G. T. S.

No. 95. PANDÍM PEAK No. VII. ♁, 27° 34′·6; 88° 12′·2. 22,017 ft. G. T. S.

Visible in the Fälút panorama; its eastern part seems to conceal the two peaks in the southern prolongation of the ridge; peaks *D* 3 and *D* 2 are, however, not visible. Schl., Herm.

No. 96. THLÓNOK PEAK, 27° 58′; 88° 28′, in Síkkim, a prominent object in the ridge separating the Láchen and Zímu valleys . . . . . ab. 20,000 ft. Hook.

No. 97. ZÍMU RIVER, 27° 59′; 88° 28′, in Síkkim, at the junction with the Thlónok; both are tributaries of the Láchen . . . . . 10,846 ft. Hook.

No. 98. NÁMTEN, 27° 11′; 88° 27′, in Síkkim, a village on a ridge separating the Tísta and Rángít, 7 miles from their junction . . . . . 4,483 ft. Hook.

No. 99. NÁMPOK, 27° 16′; 88° 27′, in Síkkim, a village on the right bank of the Tísta.
Loc. *Mean height of the village* . . . . . 5,085 ft. Hook.

No. 100. NEÓNGONG, 27° 18′; 88° 26′, in Síkkim, a large monastery at the south-eastern foot of the Máinom mountain . . . . . 5,225 ft. Hook.

No. 101. ZÍMU RIVER, 27° 52′; 88° 26′, in Síkkim, 3 miles S.W. of the junction with the Thlónok . . . . . 12,069 ft. Hook.

No. 102. SÍNGDOM PASS, 27° 18′; 88° 24′, in Síkkim, a pass leading from the Tísta valley into that of the Great Rángít . . . . . 6,824 ft. Hook.

No. 103. TÉNDONG MOUNTAIN, 27° 13′; 88° 23′, in Síkkim, a well marked peak on the ridge separating the Rángít and Tísta.
Loc. 1) *Top of the mountain* . . . . . 8,667 ft. Hook.
„ 2) *Námchi, a step on the spur, descending from Téndong to the south* . . . . . 5,608 „ Hook.
„ 3) *Témi, a step on the north-eastern slopes of the Téndong mountain* . . . . . 4,771 „ Hook

No. 104. MIK, 27° 19′; 88° 23′, in Síkkim, a village on the southern slope of the Téndong mountain . . . . . 3,912 ft. Hook.

No. 105. MÁINOM MOUNTAIN, 27° 21′; 88° 23′, in Síkkim, between the Tísta and Great Rángít valleys.
Loc. 1) *Top of the mountain* . . . . . 10,657 ft. Hook.
„ 2) *Námpak village, N.E. of Máinom mountain* . . . . 4,427 „ Hook.

No. 106. LÍNGTAM, 27° 18′; 88° 21′, in Síkkim, on the road leading from the Rángít to the Tísta valley . . . . . 5,554 ft. Hook.

No. 107. RANGTÚ SPUR, 27° 1′; 88° 20′, in Síkkim, 5½ miles E. of Darjíling.

Loc. *Police thánah* . . . . . ab. 5,000 ft. Sherwill.

No. 108. TÉNGLING, 27° 22′; 88° 20′, in Síkkim, a village on the way from the Changachélling temples to the Téngling . . . . . 5,257 ft. Hook.

No. 109. KATSUPÉRRI LAKE, 27° 23′; 88° 19′, in Síkkim, on the right bank of the Rátong, 3 miles W. of Yóksun.

Loc. 1) *Level of the lake* . . . . . 6,038 ft. Hook.

„ 2) *Temple near the lake* . . . . . 6,484 „ Hook.

No. 110. GREAT RÁNGÍT RIVER, 27° 6′·5; 88° 18′·5 ⊨, in Síkkim, below Darjíling.

Loc. *Bángalo on the right bank of the river* . . . . . 1,925 ft. Schl., Herm.

14, Newman. 1855, May 5, 7h A.M. *A.* 27·993; 48·2; 80. Darjíling 23 156; 48 9, 74. — 51 = 1,935 ft.
„ „ „ 9h „ „ 28·063, 51 1; 72. „ 23·180; 51·8; 70. + 0 = 1,914 „

No. 111. TÁKPÁR, 27° 4′; 88° 18′, in Síkkim, a village E. of Darjíling.

Loc. *Mean height of the village* . . . . . 4,143 ft. Schl., Herm.

14, Newman, 1855, May 4, 9h 30m A.M. *A.* 25·803; 71 2; 80 Darjíling 23·223; 71 6; 86 ft.

No. 112. MAHÁLDIRAM, 26° 53′; 88° 17′, in Síkkim, a station on the Darjíling road.

Loc. 1) *Dak bángalo* . . . . . 6,574 ft. Schl., Herm.

1, Greiner. 1855, April 17, 9h 45m A.M. *A.* 23·572; 56 5. Darjíling 23·069; 51 8.

Loc. 2) *Copper mines on the eastern slopes of the crest* . . 2,780 ft. Schl., Herm.

= 3,794 ft. below the dāk bángalo at Maháldiram; by aneroid.

Loc. 3) *Upper limit of "Caryota urens"* . . . . . 5,000 ft. Schl., Herm.

No. 113. △ CHÁTTAKPUR, 26° 57′; 88° 17′, in Síkkim, a halting place on the Darjíling road, S. of Sínchal.

Loc. *Encamping ground* . . . . . 7,049 ft. Schl., Herm.

1, Greiner. 1855, April 17.

h	m						
12	15	P.M.	23·197; 49·3.	Darjíling	23·056; 52·2	=	7,001 ft.
3	0	„	23·131; 51·1.	„	23·031; 51·1	=	7,050 „
4	0	„	23·099; 51 1.	„	23·057; 50·0	=	7,095 „

No. 114. GREAT RÄNGÍT RIVER, 27° 18′; 88° 17′, in Síkkim, 2 miles S. of Tassidíng.

Loc. *Level of the river* . . . . . 2,030 ft. Hook.

No. 115. KÄRSIÓNG, 26° 51′; 88° 16′, in Síkkim, on the road from the plains to Darjíling.

Loc. *Dāk bángalo* . . . . . 4,848 ft. Schl., Herm

„ *ditto* . . . . . 4,813 „ Hook.

1, Greiner., 1855, April 5, 8h 35m P.M. *A.* 25·182; 60·8; 64. Calcutta 29·782; 84·3; 71 = 4,855 ft.

„ „ „ Darjíling 23·179; 70·0; 80 = 4,840 „

No. 116. GREAT RÄNGÍT RIVER, 27° 19′; 88° 16′, in Síkkim, a little above the junction with the Kälhét.

Loc. *Level of the river* . . . . . 1,839 ft. Hook.

No. 117. TASSIDÍNG, 27° 19′; 88° 16′, in Síkkim, Buddhist temples on a spur between the Rángbi and Rängit.

Loc. 1) *Buddhist temples* . . . . . 4,840 ft. Hook.

„ 2) *Upper limit of the funereal cypress "Cupressus funebris"* . . . . . 6,000 „ Hook.

No 118. SÚNNUK, 27° 20′; 88° 16′, in Síkkim, an open place N. of Tassidíng.

Loc. *Undefined* . . . . . 3,986 ft. Hook.

No. 119. RÁNGBI RIVER, 27° 20′; 88° 16′, in Síkkim, near its junction with the Rátong.

Loc. *Level of the junction* . . . . . 3,165 ft. Hook.

No. 120. DARJÍLING, 27° 3′·0; 88° 15′·3 ♁, in Síkkim, a large station and well known sanitarium.

Loc. 1) *Top of the Observatory hill* . . . . . 7,168 ft. G. T. S.

This hill, one of the best defined localities of the station, is situated near the separation of the Libóng and Takvár spurs. The instruments of Dr. Withecombe, as well as my own (I inhabited a house close by, Ada Villa), had been put up at this place, to which all my barometrical measurements in Síkkim are referred.

In the following list of various localities in the station, the points determined follow each other from east to west, and from north to south. The ridge along which the station is built divides itself to the north in the Libóng and Takvár spurs, and continues to the south by the Jillapahár spur.

All the following localities are laid down on the very detailed "Index Map to the Locations at Darjíling," surveyed in 1856, by Capt. W. S. Sherwill. The scale of the map is $6\frac{1}{2}$ inches = 1 mile.

Loc. 2)	*Bannock burn, on Libóng spur, 1 mile N.E. of the Observatory hill*	6,039 ft.	G. T. S.
„ 3)	*Birch Hill, on the Takvár spur, 1 mile N.W. of the Observatory hill*	6,881 „	G. T. S.
„ 4)	*Church, trigonometrically referred to Observatory hill*	6,905 „	Schl., Herm.
„ 5)	*Smith's Hótel, on Takvár spur*	6,872 „	Hook.
„ 6)	*Libóng, native village on Libóng spur*	6,021 „	G. T. S.
„ 7)	*The Dale*	6,952 „	G. T. S.
„ 8)	*Rockville*	7,134 „	G. T. S.
„ 9)	*Beechwood park*	6,966 „	Hook.
„ 10)	*Superintendent's house (Dr. A. Campbell)*	6,932 „	G. T. S.
„ 11)	*Bryn Guiyn*	6,735 „	G. T. S.
„ 12)	*Jillapahár, Mr. H. O. Hodgson's house*	7,429 „	Hook.
„ 13)	*Jillapahár top, $2\frac{1}{2}$ miles S. of the Observatory hill*	7,896 „	Hook.
„ 14)	*Colinton*	7,179 „	Hook.
„ 15)	*Ging, a flat ridge below Darjíling*	5,156 „	Hook.
„ 16)	*Saddle of road over the shoulder of the Sinchal*	7,412 „	Hook.

No. 121. NÁRSÍNGH PEAK, 27° 30′·7; 88° 15′·0 ⅄, in Síkkim.

Loc.	*Top of the peak*	19,139 ft.	G. T. S.

In the Fálút panorama, the summit is 26 miles distant from Fálút. Schl., Herm.

No. 122. PANKABÁRI, 26° 49′; 88° 14′, in Síkkim, the first station above the Síkkim Tarai.

Loc.	*Dak bángalo*	1,790 ft.	Schl., Herm.
„	*ditto*	1,815 „	Hook.

1, Greiner. 1855, April 15, 10^h A.M. 27·957; 77 0; 55. Darjiling 23·183; 74·0; 70. + 54 ft.

No. 123. RÄGNIÓK, 26° 57′; 88° 14′, in Síkkim, a village S.W. of the Sínchal ridge.

Loc. *Mean height of the village* . . . . . 4,563 ft. Hook.

No. 124. PEMÍONGCHI, 27° 19′; 88° 14′, in Síkkim, a Buddhist temple on a ridge between the Kälhét and Rängbi.

Loc. 1) *Entrance to the temple* . . . . . 7,083 ft. Hook.

„ 2) *Pemíongchi village* . . . . . 6,551 „ Hook.

No. 125. RÁNGBI RIVER, 27° 20′; 88° 14′, in Síkkim, at the junction with the Rängit.

Loc. *Level of the junction* . . . . . 3,290 ft. Hook

No. 126. CHÓNPONG, 27° 25′; 88° 14′, in Síkkim, a village on the left bank of the Rángbi, above its junction with the Great Rängit . . . . . 4,977 ft. Hook.

No. 127. BÚKIM, 27° 27′; 88° 14′, in Síkkim, a forest on a spur descending from Narsingh.

Loc. *Undefined* . . . . . 8,659 ft. Hook

No. 128. PÁCHUM, 26° 57′; 88° 13′, in Síkkim, a village S.W. of Sínchal.

Loc. 1) *Bángalo Zénnadah* . . . . . 7,258 ft. Hook

„ 2) *Native village on a very steep descent* . . . . . 3,855 „ Hook

„ 3) *Upper limit of the tree fern "Alsophila gigantea"* 7,000 „ Hook

---

No. 129. LÍNGCHAM, 27° 16′; 88° 13′, in Síkkim, a village near the large monastery Changachélling . . . . . 4,870 ft. Hook

---

No. 130. DÚBDI, 27° 22′; 88° 13′, in Síkkim, a Buddhist monastery.

Loc. *Entrance to the monastery* . . . . . 6,472 ft. Hook

No. 131. HI PASS, 27° 15′; 88° 12′, in Síkkim, leading over the Hi mountain from the Kälhét into the Ramám valley . . . . . 7,289 ft. Hook.

No. 132. KÄLHÉT RIVER, 27° 17′; 88° 12′, in Síkkim, 2 miles below the Hi mountain.

Loc. *Level of the river* . . . . . 3,159 ft. Hook.

No. 133. YÓKSUN, 27° 22′; 88′ 12′, in Síkkim, the earliest settlement of Lámas in Síkkim.

Loc. *Mean height of the settlement* . . . . . 5,617 ft. Hook.

No. 134. DÁMPUK, 27° 25′; 88° 12′, in Síkkim, on the right bank of the Rátong, above Yóksun . . . . . 6,678 ft. Hook.

No. 135. RÁTONG RIVER, 27° 27′; 88° 12′, in Síkkim, an affluent of the Great Rángít.

Loc. 1) *Level of the Rátong below Mon Lépcha* . . . . . 7,143 ft. Hook.

„ 2) *Level of the Rátong below Yóksun* . . . . . 3,790 „ Hook.

„ 3) *Junction with the Great Rángít* . . . . . 1,600 „ Hook.

No. 136. CHONGTÓNG CHÓKI, 27° 3′; 88° 11′, in Síkkim, a police station on a crest descending from the Gung ridge.

Loc. *Principal house of the station* . . . . . 4,677 ft. Schl., Herm.

14, Newman. 1855, May 7, $8^h\ 41^m$ P.M. *A.* 25·225; 61 9; 86. Darjíling 23·089; 62 2; 76 = 4,678 ft.
„ „ „ 8, $9^h\ 0^m$ A.M. „ 25·234; 67·8; 75. „ 23 123; 68·2; 66 − 4,675 „

No. 137. MON LÉPCHA MOUNTAIN, 27° 29′; 88° 11′, in Síkkim, on the right bank of the Rátong . . . . . 13,067 ft. Hook.

No. 138. LITTLE RÁNGÍT RIVER, 27° 4′·8; 88° 10′·3 E, in Síkkim, W. of Darjíling.

Loc. 1) *Suspension bridge below Saimonbóng* . . . . . 2,780 ft. Schl., Herm.

14, Newman. 1855, June 15, 2^h P.M. *A.* 26·861; 77·2; 90. Tónglo 20·698; 49·3; 92. + 73 = 2,781 ft.
Darjíling 23·044; 62·1; 94. + 44 = 2,779 ft.

Loc. 2) *Step on the left shore of the river, on a secondary terrace of the steep bank of erosion* . . . . . 3,130 ft. Schl., Herm.

This was the place where my magnetic instruments were put up.

No. 139. RÁTONG RIDGE, 27° 40′; 88° 10′, in Síkkim, a spur connecting Kanchinjínga with the Pandím ridge, with very large glaciers on its northern and southern flanks.

Loc. *Mean height of the ridge* . . . . . 24,957 ft. Schl., Herm.

The height is deduced from horizontal and vertical angles from various points of the Singhalíla ridge. The eastern end of this ridge was not visible. Schl., Herm.

No. 140. SAIMONBÓNG, 27° 5′; 88° 9′, in Síkkim, a Láma's residency at the lower end of a spur descending from Tónglo.

Loc. *Upper buildings of the Lámas* . . . . . 5,674 ft. Schl., Herm.

14, Newman. 1855, June 15, 8h 30m A.M. *A.* 24·375; 62·6. Tónglo 20·835; 50 0. — 43 = 5,696 ft. Darjíling 23·096; 57·2. — 15 = 5,651 ft.

No. 141. YANGPÚNG, 27° 30′; 88° 9′, in Síkkim, a mountain 4 miles N. of Mon Lépcha.

Loc. *Top of the mountain* . . . . . 13,172 ft. Hook.

Nos. 142-3. KANCHINJÍNGA PEAKS, on the Síkkim-Tíbet frontier.

No. 142. KANCHINJÍNGA EAST PEAK No. VIII. ☩, 27° 41′·5; 88° 8′·4.

Loc. *Top of the peak* . . . . . 27,815 ft. G. T. S.

No. 143. KANCHINJÍNGA WEST PEAK No. IX. ☩, 27° 42′·1; 88° 8′·0.

Loc. *Top of the peak* . . . . . 28,156 ft. G. T. S.

This peak is only exceeded in height as yet (1861) by the Gaurisánkar in Nepál, and the Dápsang peak in the Karakorúm chain. The latter peak, marked by the G. T. S. *K* 2, in Lat. N. 35° 41′; Long. E. Gr. 76° 48′, attains a height of 28,278 ft. See Journal of the Asiatic Society of Bengál, 1860, No. I., p. 21. Kanchinjínga forms a central and predominant object in the Síkkim panorama of the snowy range; and is figured in detail on the plate, No. 2, of our Atlas of Panoramas and Views

Kanchinjínga presents itself from Fálút under a vertical angle of 4° 51′ 10″, and even the lowest point of the junction between Kábru and Kanchinjínga (the curve seen just below the eastern peak) has still in the panorama an angular height of 3° 36′. The peak is 181,632 feet distant from Fálút. (See p. 292). Schl., Herm.

No. 144. GUNG RIDGE, 26° 57′; 88° 8′, in Síkkim, a lateral spur of the Sinchal ridge in an east-westerly direction . . . . . 7,441 ft. Hook.

No. 145. BALASÚN RIVER, 26° 58′; 88° 8′, in Síkkim, on the southern side of the Gung ridge.

Loc. *Source of the river* . . . . . 7,443 ft. Hook.

No. 146. CHANGACHÉLLING, 27° 18′; 88° 7′, in Síkkim, a Buddhist temple, 2 miles N. of the Kălhét . . . . . 6,827 ft. Hook.

No. 147. MÁYONG RIVER, 26° 27′; 88° 6′, in Eastern Nepál, on the western side of a spur, descending to the south from Tónglo.

Loc. *Source of the river* . . . . . 4,798 ft. Hook.

No. 148. KÁBRU PEAK (No. x.$\dagger$), 27° 36′·5; 88° 5′·8, in Síkkim.

Loc. *Top of the peak* . . . . . 24,015 ft. G. T. S.

This peak, notwithstanding its great absolute height, forms but a secondary object of the massif of Kanchinjínga in the Fálút panorama. Schl., Herm.

No. 149. MÁYONG VALLEY, 26° 57′; 88° 4′, in Eastern Nepál, 6 miles S. of the Tónglo mountain, near which it commences.

Loc. 1) *Undefined* . . . . . 4,345 ft. Hook.

„ 2) *8 miles S. of the Tónglo mountain* . . . . . 3,782 „ Hook.

No. 150. TÓNGLO MOUNTAIN 27° 1′·8; 88° 3′·9$\dagger$, in Síkkim, the most southern prominent point of the Singhalíla ridge.

Loc. 1) *Top of the mountain* . . . . . 10,080 ft. G. T. S.

„ 2) *Grove at the foot of the peak, with a small pool surrounded by rhododendron trees* . . . . . 9,891 „ Schl., Herm.

5, Adie. 1855, May 10, 8h 30m A.M. *A.* 21·005; 50·7; 83. Darjíling, 23·165; 51·6; 65. + 27 = 9,883 ft.
„ „ „ 9h 45m „ „ 20·980; 53·4; 81. „ 23·159; 53·6; 60. + 0 = 9,899 „

Loc. 3) *Saddle below the summit* . . . . . 10,008 „ Hook.

„ 4) *Rocks on the ascent to Tónglo* . . . . . 8,148 „ Hook.

„ 5) *Upper limit of palms* . . . . . 6,500 „ Schl., Herm.

„ 6) *Upper limit of "Pinus longifolia"* . . . . . 3,000 „ Schl., Herm.

„ 7) *Upper limit of "Gordonia Wallichii"* . . . . . 4,000 „ Hook.

„ 8) *Upper limit of figs and Tetranthera* . . . . . 9,000 „ Hook.

„ 9) *Upper limit of Cinnamonum* . . . . . 8,500 „ Hook.

No. 151. CHANGTÁBU MOUNTAIN, 27° 20′; 88° 3′, in Síkkim, on the Singhalíla ridge.

Loc. 1) *Top of the mountain* . . . . . 11,963 ft. G. T. S.

„ 2) *Camp in a little plain, S.W. of the mountain* . . . 11,710 „ Schl., Herm.

14, Newman. 1855, June 1, 6h 30m P.M. *A.* 19·534; 45·3; 82. Darjíling 23·024; 61·0; 90. + 0 = 11,700 ft.
„ „ „ 2, 8h 0m A.M. „ 19·587; 48·0; 84. „ 23·049; 59·7; 91. + 45 = 11,720 „

No. 152. PARMIÓKSONG, 26° 55′; 88° 2′, in Eastern Nepál, a village on the right bank of the Máyong . . . . . 4,521 ft. Hook.

No. 153. ISLÚMBO PASS, 27° 17′; 88° 2′, in Eastern Nepál, leading from Nepál to Síkkim over the northern continuation of the Singhalíla ridge.

Loc. 1) *Top of the pass* . . . . . 10,388 „ Hook.

„ 2) *Terrace on the western slopes of the pass* . . . . . 9,295 ft. Hook.

„ 3) *Western foot of the Islúmbo pass, on the Íva* . . . 6,159 „ Hook.

No. 154. GÓZA MOUNTAIN, 27° 16′·5; 88° 1′·8 P, in Síkkim, the next peak in a north-easterly direction to Fálút, bearing from Fálút N. 20½° E.

Loc. 1) *Top of the mountain* . . . . . 12,080 ft. Schl., Herm.

1, Greiner. 1855, June 3, 9h A.M. *A.* 19·354; 53·6; 72. Darjíling 23·087; 61·3; 82.

Loc. 2) *Upper limit of Tree Rhododendrons on the Síkkim side; Exposition East* . . . . . 9,500 ft. Schl., Herm.

The limit of the tree rhododendrons is decidedly lower on all the surrounding mountains, than the environs of Tónglo. Schl., Herm.

No. 155. JÁNNU (No. XL ♃), 27° 40′·9; 88° 1′·8, in Síkkim 25,304 ft. G. T. S

A very well defined peak, connected on the south-west with the Chunjérma range. Schl., Herm.

No. 156. SÄLLUBÓNG, 26° 57′; 88° 1′, in Eastern Nepál, a village near the southern end of a ridge forming the watershed between the rivers Mái and Paúa.

Loc. *Undefined* . . . . . 5,277 ft. Hook.

No. 157. NÁNGI, or NÁNKI PASS, 27° 1′; 88° 1′, in Síkkim, a considerable depression in the Singhalíla ridge near the Tónglo mountain.

Loc. 1) *Top of the pass* . . . . . 9,643 ft. Schl., Herm

14, Newman. 1855, June 13, 8h 45m P.M. *A.* 21·061; 19·8; 90. Darjíling 23·036; 58·2, 95

Loc. 2) *Limit of bamboos, 14 feet in length, 2 to 3 inches in diameter* . . . . . 10,293 ft. Schl., Herm.

= 650 ft. above the top of the pass; by aneroid.

A depression of about 9,800 ft. also presented itself a little farther north, only a few miles S. of the Chandanángi mountain, but it was not separately measured. Schl., Herm.

No. 158. CHÁNDA NÁNGI MOUNTAIN, 27° 5′·5; 88° 1′·0 P, in Síkkim, in the Singhalíla ridge, from which a large spur descends to the Ramám in a north-easterly direction, while a ridge of more uniform height, called the Säkiazáng, branches off to the west.

Loc. 1) *Top of the mountain* . . . . . 11,971 ft. Schl., Herm.

14, Newman. 1855, June 13, 8h 45m A.M. *A.* 19·433; 43·9. Fálút 19·382; 43·3.

The latitude and longitude of this mountain was deduced from bearings to Sínchal and Téndong. The readings gave an angular distance between these two mountains of 50° 20′.

Captain Sherwill, who calls this peak "Sundhukpho", obtains its height = 11,963 ft. Hooker calls this peak "Phulloot."

Loc. 2) *Encampment at the foot of the rocky summit*, 1855, *June* 12 *to* 13 . . . . . 11,851 ft. Schl., Herm.

= 120 ft. below the summit; by aneroid.

„ 3) *Encampment*, 1855, *May* 17 *to* 18 . . . . . 11,051 „ Schl., Herm.

= 920 ft. below the summit; by aneroid.

This encampment, under a wall of rocks on the eastern slopes of the mountain, was my second halting place N. of Tónglo. Though unfavourably situated, on account of the scarcity of water, we were obliged to make a halt here. My kúlis encamped 150 ft. lower down, at a spot where they found a little ravine for protection and shelter, and a spring. A most violent thunder-storm with hail set in soon after our tents were pitched, and lasted all night. Schl., Herm.

Loc. 4) *Forest of dead trees (Abies Webbiana); Exposition S.E.* . . . . . 10,628 ft. Schl., Herm.

— 1,243 ft. below the summit; by aneroid.

This species of "Abies" grows much lower on slopes of north or north-east exposition. In these regions, where man does not interfere with the development of vegetation, the upper limits, as well as the lower, are very often marked by a great number of dead trees. Schl., Herm.

Loc. 5) *Depression in the Singhalíla ridge, 3 miles N. of the Chánda Nángi mountain* . . . . . 11,574 ft. Schl., Herm.

= 397 ft. below the Chánda Nángi mountain; by aneroid.

No. 159. Yállung River, 27° 36′; 88° 1′, in Eastern Nepál, an affluent of the Támbur.

Loc. 1) *Camp near the river* . . . . . 10,057 ft. Hook.

„ 2) *Terrace on the left bank of the river* . . . . . 10,449 „ Hook.

„ 3) *Upper limit of "Abies Brunoniana" and "Rododendron Falconeri"* . . . . . 10,000 „ Hook.

No. 160. Chíddi Pass, 27° 1′; 88° 0′, on the Síkkim-Nepál frontier, a short distance S. of the Chánda Nángi mountain, leading from Síkkim to Nepál . . 8,537 ft. Schl., Herm.

14, Newman. 1855, May 16, 4h P.M. *A.* 22·047; 56·3. Darjíling 23 166; 56·1.

A snake was still met with 500 ft. above this pass.

No. 161. KÄLHÉT VALLEY, 27° 15′; 88° 0′, in Síkkim, 7 miles E. of the Islúmbo pass.

Loc. *Undefined* . . . . . 6,390 ft. Hook.

No. 162. JAMMÁNU, 27° 0′; 87° 59′, in Eastern Nepál, a village at the lower end of a ridge descending from the Chánda Nángi mountain . . . . . 4,362 ft. Hook.

No. 163. NÁNGI, or NÁNKI MOUNTAIN, 27° 1′; 87° 59′, in Eastern Nepál, the first summit on the Singhalíla ridge N. of Tónglo, very little elevated above the crest.

Loc. 1) *Top of the mountain* . . . . . 10,437 ft. Schl., Herm.

„ *ditto* . . . . . 10,019 „ Hook.

14, Newman. 1855, May 16, 8h P.M. *A.* 20·953; 43·5. Tónglo 21·233; 12 8.

Here was my first halting place N. of Tónglo. Schl., Herm.

Loc. 2) *Highest springs of the Jammánu river* . . . . . 10,317 ft. Schl., Herm.

= 120 ft. below the top of the mountain; by aneroid.

„ 3) *Highest shoulder of Nánki on the way to Ilám* . . . 9,319 „ Hook.

„ 4) *Shepherds' huts* . . . . . 8,999 „ Hook.

„ 5) *Second shoulder of Nánki* . . . . . 7,216 „ Hook.

No. 164. HIMÁKOLI SPRINGS, 27° 12′; 87° 59′, in Síkkim, on the Singhalíla ridge.

Loc. *Southern outlet of the group of springs* . . . . . 11,250 ft. Schl., Herm.

Referred to Fälút peak by triangulation.

No. 165. FÄLÚT, or SINGHALÍLA PEAK, 27° 13′·7; 87° 59′·8 ☥, in Síkkim, on the Singhalíla range.

Loc. 1) *Top of the peak* . . . . . 12,042 ft. G. T. S.

I (Hermann) lived in a tent near the top of this peak during three weeks, while occupied with physical observations and trigonometrical measurements of the snowy range. For the height of Fälút we adopted the value of the G. T. S. My tent was pitched at an elevation of 11,838 ft. above the sea (see p. 56). Fälút also served as a station for eliminating the errors depending on the season corrections for these regions. (See p. 57.)

In the materials communicated to us by the G. T. S. we find another peak mentioned at a distance of only a mile to the north-west; its height, also contained in Dr. Hooker's map, is 12,329 ft. This height, however, seems to refer to a much more westerly peak. We had no peak dominating Fälút immediately on our left: compare the panorama of the eastern Himaláya in the Atlas. The latitude and longitude given above are determined trigonometrically by us; the numerous peaks so well defined and so distant from each other, as Kanchinjínga, Pandím, and Närsingh, etc., allowed us not only to

deduce from our trigonometrical angles the latitude and longitude of Fălût, but they offered also a very valuable control for the height of Fălût which we had adopted.

As one of our principal panoramas is made from this peak, we think it advisable to give exceptionally some details of our trigonometrical measurements. Introducing for Tónglo and Fálût, the geographical co-ordinates given above, we obtain, assuming for the refraction $\frac{1}{13 \cdot 2}$ of the contained arc, the following values:

Name of Peak.	Distance from Fálût in Feet.	Vertical Angle above Fálût.	Resulting Absolute Height in Feet.	Difference from the Measurements of the G. T. S. in Feet.
		° ′ ″		
Kanchinjínga . .	181,632	4 51 10	28,123	- - 33
Pandím	146,045	3 44 0	22,003	— 14
Nársíngh	137,808	2 49 20	19,223	+ 84

These values perfectly corroborate the distances introduced in the calculation, and in consequence the geographical co-ordinates we had obtained for Fálût.

Loc. 2) *Fălût peak at the southern end of the ridge, with our magnetic tent, close to Changtába.*

The astronomical determination of this point gave (see Vol. I. p. 190) 27° 6′ 20″; Long. E. Gr. 87° 59′ 0″. The height was not separately determined, the point being nearly on a level with *locality* 1.; we therefore adopted 12,042 ft. as the 3rd geographical co-ordinate, in preference to deducing it from a few isolated barometrical readings.

Loc. 3) *Deepest point of the Singhalíla ridge between the southern and northern Fălût peaks* . . . . . 11,182 ft. Schl., Herm.

„ 4) *Secondary elevation on the Singhalíla ridge* . . . . 11,498 „ Schl., Herm.

This point is 3 miles S. of the principal or northern summit, referred by triangulation to the Fálût peak. It was my last encamping place before Tónglo, 1855, May 18th to 19th.

Loc. 5) *Singhalíla ridge at the base of Loc. 3 to the south* 11,354 ft. Schl., Herm.

„ 6) *ditto to the north* . . . . . 11,415 „ Schl., Herm.

The value gives at the same time the average height of the crest to the south and to the north of it.

Loc. 7) *Southern base of the cone of Fălût* . . . . . 11,778 „ Hook.

„ 8) *Spring on the south side of Fălût peak* . . . . . 1,956 ft. Schl., Herm.

= 86 ft. below the summit; by aneroid.

The water was remarkably plentiful, considering the short distance of the spring from the top.

In the immediate environs of the summit of Fălût, we had also determined the following points:

Loc. 9) *Spring in a ravine on the eastern slope of Fălût* . 11,749 ft. Schl., Herm.
= 293 ft. below the summit; by aneroid.

„ 10) *Snow-bed about 20 feet long and 4 feet broad*. . . 11,490 „ Schl., Herm.
= 552 ft. below the summit; by aneroid.

It was reported to me by a bhísti (water-carrier), who never had seen snow before, as "an immense hail-stone". See details about similar mistakes, of frequent occurrence in these parts, in the volumes of Meteorology.

Loc. 11) *Upper limit of "Coelogyne Wallichii" and "Taxus"* 10,000 ft. Hook

---

No. 166. KAMBOCHÉN, or NÁNGO PASS, 27° 42′; 87° 59′, in Síkkim. W. of the monastery Tassichúding, leading from the Kambochén into the Yángma valley.

Loc. 1) *Top of the pass* . . . . . 15,770 ft. Hook
„ 2) *Foot of the pass* . . . . . 11,627 „ Hook.
„ 3) *Kambochén village* . . . . . 11,378 „ Hook.
„ 4) *Valley near the village* . . . . . 11,184 „ Hook.
„ 5) *Beds of perpetual snow* . . . . . 15,000 „ Hook
„ 6) *Upper limit of dwarf juniper* . . . . . 13,500 „ Hook

The depression of this pass is visible in the Fălût panorama. Schl., Herm

---

No. 167. CHUNJÉRMA PASS, 27° 36′; 87° 58′, in Eastern Nepál, leading over a spur descending from the Chunjérma mountain.

Loc. 1) *Top of the pass* . . . . . 15,259 ft. Hook
„ 2) *Foot of the pass* . . . . . 13,288 „ Hook.
„ 3) *Upper limit of the musk-deer* . . . . . 13,000 „ Hook
„ 4) *Lower limit of the musk-deer* . . . . . 8,000 „ Hook.

No. 168. KHÁBILI SADDLE, 27° 15′; 87° 56′, in Eastern Nepál, leading from the Khábili into the Íva valley . . . . . 5,746 ft. Hook.

No. 169. BHÉTI, 26° 58′; 87° 55′, in Eastern Nepál, a village on the western slopes of a spur separating the Páua and Mái valleys . . . . . 4,683 ft. Hook.

No. 170. MAKARÁMBI, 27° 6′; 87° 55′, in Eastern Nepál, a village in a lateral valley of the Pémmi, on the northern slope of the Sankiatsáng ridge.

Loc. *Undefined* . . . . . 5,484 ft. Hook.

No. 171. KHÁBANG, 27° 26′; 87° 55′, in Eastern Nepál, a village on a steep terrace on the right bank of the Táva, an affluent of the Támbur . . . . . 5,505 ft. Hook.

No. 172. YÁNKUTANG, or TÓNGHAN, 27° 30′; 87° 55′, in Eastern Nepál, on the right bank of the Kháingva. . . . . 5,564 ft. Hook.

No. 173. SANKIATSÁNG, 26° 58′; 87° 54′, in Eastern Nepál, a village on the right bank of the Paúa . . . . . 5,825 ft. Hook.

No. 174. ÍVA RIVER, 27° 17′; 87° 54′, in Eastern Nepál, 4½ miles N.W. of the Singhalila peak.

Loc. *Camp on the right bank of the river* . . . . . 3,782 ft. Hook.

No. 175. YANGYADÍNG, 27° 20′; 87° 54′, in Eastern Nepál, a village 7 miles distant from the left bank of the Támbur . . . . . 4,113 ft. Hook.

No. 176. PÉMMI RIVER, 27° 9′; 87° 53′, in Eastern Nepál, 8 miles E. of its junction with the Támbur in a straight line . . . . . 2,205 ft. Hook.

No. 177. SABLÁKO, 27° 18′; 87° 53′, in Eastern Nepál, on a ridge separating the Khábili from the southern affluent of the Pángra. . . . . 4,676 ft. Hook.

No. 178. SIDÍNGBA RIDGE, 27° 20′; 87° 53′, in Eastern Nepál, end of the spur on the right bank of the Íva . . . . . 6,018 ft. Hook.

No. 179. SANKIATSÁNG RIDGE, 27° 4′; 87° 52′, in Eastern Nepál, descending from Fálút, first in a westerly, then in a southerly direction.

Loc. 1) *Camp on ridge of the mountain* . . . . . 8,353 ft. Hook.

„ 2) *One of the prominent peaks in the southern part of the ridge* . . . . . 9,322 „ Hook.

No. 180. YÁNGMA PEAK, 27° 55′; 87° 52′, on the Nepál-Tibet frontier, on the eastern side of the Yángma pass.

Loc. *Top of the western peak* . . . . . ab. 26,000 ft. Schl., Herm.

The height could only be taken approximatively, as the observations were repeatedly interrupted by fogs.

The depression of the *Yángma pass* is visible on the Fálút panorama to the left of the peak. To the right a *steep angular peak* became visible at some distance behind the ridge, 1° 9′ to the east of the preceeding one. But as neither the view from Tónglo, nor from Sínchal, allowed me to find out this peak again, its distance and height could not be ascertained. I was told it was a peak standing out from the slope descending towards Tashirúkpa, on the Árong river; its position in the view favoured the presumption, that it was not very distant from the crest.

For the Kanglachén mountain, which is the next great elevation east of the Yángma pass, no height was taken. Schl., Herm.

No. 181. YÁNGMA, 27° 51′; 87° 51′, in Eastern Nepál, a village on the foot of the Yángma pass.

Loc. 1) *Mean height of the village* . . . . . 13,502 ft. Hook.

„ 2) *Lake bed in valley* . . . . . 15,186 „ Hook.

„ 3) *Upper lake bed* . . . . . 16,038 „ Hook.

No. 182. TAPTIATÓK, 27° 29′; 87° 50′, in Eastern Nepál, a village on the left bank of the Támbur, 7 miles below its junction with the Kambochén . . . . 4,283 ft. Hook.

No. 183. TÁMBUR RIVER, 27° 20′; 87° 49′, in Eastern Nepál, 27 miles below the junction of the Vállanchun and Yángma . . . . . 2,544 ft. Hook.

No. 184. TÁMBUR RIVER, 27° 26′; 87° 49′, in Eastern Nepál, 20 miles S. of the junction of the Vallanchún and Yángma. . . . . 3,201 ft. Hook.

No. 185. LÚNGTUNG, 27° 39′; 87° 47′, in Eastern Nepál, a village on the right bank of the Támbur, 2 miles above its junction with the Kambochén . . . . 5,676 ft. Hook.

No. 186. YÁNGMA MORAINES, 27° 44′; 87° 47′, in Eastern Nepál.

Loc. 1) *Base of the lowest ancient moraine* . . . . . 12,148 ft. Hook.

„ 2) *Top of this moraine* (679 *ft. above base*) . . . . . 12,827 „ Hook.

No. 187. TÁMBUR RIVER, 27° 9′; 87° 46′, in Eastern Nepál, at the junction with the Pémmi . . . . . 1,388 ft. Hook.

No. 188. TÁMBUR RIVER, 27° 11′; 87° 46′, in Eastern Nepál, 3 miles above the junction with the Pémmi . . . . . 1,457 ft. Hook.

No. 189. CHÍNTAM, 27° 16′; 87° 46′, in Eastern Nepál, a village on the right bank of the Támbur, about 1,700 ft. above its level . . . . . 3,404 ft. Hook.

No. 190. YÁNGMA GUÓLA, 27° 42′; 87° 46′, in Eastern Nepál, a village on the right side of the Yángma valley . . . . . 9,279 ft. Hook.

No. 191. TÁMBUR RIVER, 27° 14′; 87° 45′, in Eastern Nepál, 8 miles above the junction with the Pémmi . . . . . 1,600 ft. Hook.

No. 192. TÁMBUR RIVER, 27° 37′; 87° 45′, in Eastern Nepál, 3 miles below the junction of the Vallanchún and Yángma . . . . . 8,081 ft. Hook.

No. 193. MÍVA GUÓLA, 27° 20′; 87° 44′, in Eastern Nepál, a village on the right bank of the Támbur . . . . . 2,132 ft. Hook.

No. 194. VALLANCHÚN, 27° 43′; 87° 44′, in Eastern Nepál, a village on the left bank of the Vallanchún . . . . . 10,386 ft. Hook.

No. 195. △ TÁKVORÓMA, 27° 45′; 87° 42′, in Eastern Nepál, a halting place on the left bank of the Vallanchún, on the way to the Vallanchún pass.

Loc. *Rocky terrace above the river* . . . . . 12,944 ft. Hook.

No. 196. VALLANCHÚN PASS, 27° 58′; 87° 41′, in Eastern Nepál, leading from the Támbur into the Árun valley.

Loc. 1) *Top of the pass* . . . . . 16,756 ft. Hook.

„ 2) *Foot of the pass* . . . . . 13,509 „ Hook.

„ 3) *Limit of perpetual snow* . . . . . 15,000 „ Hook.

In the Fálút panorama the pass is represented by a broad interruption of the snowy range, though the pass itself is scarcely visible. Schl., Herm.

No. 197. LANGÚR PEAK, 28° 56′; 87° 22′, in Tíbet, on the northern slope of the Langúr range, where it forms the boundary between the Tíngri province and the Dihóng valley.

Loc. *Top of the peak* . . . . . ab. 24,660 ft. Schl., Res. O.[1]

In the Fálút panorama this peak is not visible, being more than 60 miles distant from the Vallanchún pass. The height which I obtained in the Kathmándu Residency is based, I was told, on angles, though very small ones, of the G. T. S. The name of the range and the mountain is the Hindu name in use at Kathmándu, and was communicated to me by Jhäng Bahádur.

The name of Langúr, or Bánder, "monkey," is in combination with Hindu mythological ideas not unfrequently met with in the geographical terminology of the snowy ranges. Schl., Herm.

No. 198. SÍHSUR PEAK (No. XIII. ♄), 27° 53′·4; 87° 4′·5, in Nepál, at the southern end of a spur descending from the Pakángolo crest . . . . . 27,799 ft. G. T. S.

In the Fálút panorama also the crest N. of the village Pakángolo is seen, and is marked by three peaks of nearly equal apparent height. Schl., Herm.

No. 199. CHAMLÁNG PEAK No. XIV. ♄, 27° 46′·5; 86° 58′·0, in Nepál, S. of Gaurisánkar, on the right bank of the Arun, or Tamkósi . . . . . 24,020 ft. G. T. S.

On the Fálút panorama close to the left of the Gaurisánkar peak. Schl., Herm.

No. 200. GAURISÁNKAR, or MOUNT EVEREST (No. XV. ♄), 27° 59′·3; 86° 54′·7, on the Nepál-Tíbet frontier . . . . . 29,002 ft. G. T. S.

This is the highest mountain of our globe as yet measured. I saw it first from the Singhalila range, when its isolated prominent form (see plate No. 1. of the first part of our Atlas) at once signalized it as a rival of Kanchinjínga, and numerous angular heights and distances were taken. The measurements of the G. T. S. were only published in 1855, Dec. 18, and Sir Andrew Waugh had the kindness, a short time afterwards, to communicate to us, in a direct letter, the results obtained. The mean result of our measurements gives its absolute height nearly 200 feet higher (29,196 ft.), than that of the G. T. S., but the distance exceeded 84 miles; as the angles of the G. T. S. were taken from numerous and varied points, we adopt their result as the final one.

The Hindu name I found, when later in Nepál, to be Gaurisánkar, Gauri = white, or fair, a name of Párváti, the wife of Shíva; Sánkar, or Sánkara, one of the forms assumed by Shíva. Gaurisánkar is the term in use among the Hindu Pándits of Nepál; its signification shows a remarkable identity with the meaning of the name Chamalhári, the prominent object of western Bhután. The name given to Gaurisánkar by the Tibetans, and that by which it is generally known in the northernmost parts of Nepál, is "Chingopámarí."

In the Káulia panorama Gaurisánkar is also visible; it is there the most eastern peak in the snowy range. Schl., Herm.

---

[1] Information received by various British Residents in Nepál is marked "Schl., Res. O."

No. 201. Ghamláng Peak No. xvi. ☩, 27° 45′·3; 86° 48′·6, in Nepál, about 5 miles E. of the ridge descending from the Gaurisánkar peak . . . . . 22,215 ft. G. T. S.

In the Fálút panorama, this peak is the last well defined object to the west. Schl., Herm.

Nos. 202-6. Sankósi Peaks, in Nepál.

Lat. N. 27° 45′·3 to 27° 57′·5; Long. E. Gr. 86° 33′·5 to 86° 5′·5.

The view of the snowy range from the Singhalíla ridge included, besides, peaks that were nearly a degree farther to the west; as, however, the summits did not present aspects sufficiently varied for a minute analysis of detail, we limit ourselves to giving the geographical co-ordinates, as determined by the G. T. S. From the river system into which their glaciers discharge themselves, we give the peaks the general name of Sankósi. They are also visible in the Káulia panorama, the most western of them presenting from Kathmándu a very high, sharp point, occasionally called "Needle peak" in the Residency.

No. 202. Sankósi Peak No. xvii. ☩, 27° 45′·3; 86° 33′·5. 22,826 ft. G. T. S.

No. 203. Sankósi Peak No. xviii. ☩, 27° 52′·8; 86° 28′·5. 21,987 ft. G. T. S.

No. 204. Sankósi Peak No. xix. ☩, 27° 58′·3; 86° 25′·1. 23,570 ft. G. T. S.

No. 205. Sankósi Peak No. xx. ☩, 27° 57′·8; 86° 18′·3. 23,447 ft. G. T. S.

No. 206. Sankósi Peak No. xxi. ☩, 27° 57′·5; 86° 5′·5. 19,560 ft. G. T. S.

Nos. 207-9. Jibjíbia Peaks, in Nepál.

No. 207. Jibjíbia East Peak No. xxii. ☩, 28° 7′·7; 85° 51′·3.

21,853 ft. G. T. S.

In the Káulia panorama, this is the first prominent object, and on account of its comparatively short distance, appears to be of considerable height. It stands in the Kerántis' country. From the environs of Kathmándu two peaks are seen as gemini, very close to each other. Compare Nepál panorama from Káulia. Schl., Herm.

No. 208. Jibjíbia Central Peak No. xxiv. ☩, 28° 10′·4; 85° 45′·9.

22,891 ft. G. T. S.

The mountain ridge Jibjíbia connects this peak with Shupúri. See the Káulia panorama. Schl., Herm.

No. 209. JIBJÍBIA NORTH PEAK No. XXIII. ♁, 28° 21′·1; 85° 46′·0.

26,306 ft. G. T. S.

It is not visible in the Káulia panorama. In a direction to the west of the bearing I saw an apparently high snow-clad mountain; but it was, as my subsequent triangulation showed, only one of the numerous minor peaks of the Jibjíbia ridge, and comparatively not very distant.

Schl., Herm.

No. 210. DAIBÚNG PEAK (No. XXV. ♁), 28° 15′·4; 85° 30′·2, in Nepál.

23,762 ft. G. T. S.

Visible in the Káulia panorama, just rising above the left slope of the Jibjíbia ridge; it is about equally distant from the latter crest and from the Trissulgánga. Schl., Herm.

No. 211. FULSHÓK MOUNTAIN, 27° 34′; 85° 20′, in Nepál, S.E. of Kathmándu.

Loc. *Top of the peak* . . . . . 9,750 ft. Schl., Herm.

Deduced from trigonometrical measurements from Káulia and Chandragíri.

No. 212. SHUPÚRI MOUNTAIN, 27° 49′; 85° 19′, in Nepál, a ridge in a meridional direction, N.N.E. of Kathmándu . . . . . 8,545 ft. Schl., Herm.

Deduced from trigonometrical measurements from Káulia and Chandragíri. In the Káulia panorama it would be seen overtowering the western slope of Kákani, if continued to the east.

Schl., Herm

No. 213. FÍRFING, 27° 39′; 85° 15′, in Nepál, a village S.E. of Kathmándu.

Loc. *Temple in the centre of the village* . . . . . 4,885 ft. Schl., Herm.

10, Pistor. 1857, March 10, 12h 45m P.M. *A.* 25·213; 53·1; 100. Pátna 29·865; 68 9; 80. · 47 ft.

No. 214. KÁRBU PASS, 27° 35′; 85° 13′, in Nepál, on the road from Hetáunda to Kathmándu, viâ Fírfing.

Loc. *Top of the pass* . . . . . 6,688 ft. Schl., Herm.

Trigonometrically measured from the village of Kárbu.

No. 215. KÁKANI RIDGE, 27° 49′; 85° 13′, in Nepál, a range of an east-westerly direction, N. of Kathmándu.

Loc. 1) *West Peak* . . . . . 8,176 ft. Schl., Herm.

„ 2) *East Peak* . . . . . 8,333 „ Schl., Herm.

By trigonometrical determination from the base line near the Residency at Kathmándu.

No. 216. KATHMÁNDU, 27° 42′·1; 85° 12′·2 E, the capital of the kingdom of Nepál, situated nearly in the centre of its longitudinal extent, between the provinces of Saptkósika and Saptgándaki.

Loc. *Tar of the British Residency, 1½ mile N. of the city* . 4,354 ft. Schl., Herm.

9, Pistor, and 14, Newman. 1857.

Date and Hour.	Kathmándu.	Pátna.	Per. Corr.	Height.
h				
Feb. 23, 9 A.M.	25·602; 54·7; 80	29·688; 68·1; 69	+ 8	4,342
„ 25, 10 „	25·674; 59·7; 63	29·779; 74·1; 79	+ 4	4,394
„ 28, 10 „	25·638; 59·7; 70	29·697; 74·1; 63	+ 4	4,354
March 1, 9 „	25·626; 54·9; 84	29·714; 70·2; 59	0	4,339
„ 1, 10 „	25·607; 59·2; 73	29·723; 71·2; 56	— 4	4,392
„ 2, 9 „	25·729; 58·6; 89	29·768; 71·1; 58	0	4,302
„ 2, 10 „	25·717; 62·6; 75	29·781; 71·8; 56	— 4	4,341
„ 6, 10 „	25·709; 60·6; 72	29·793; 75·7; 58	4	4,370

No. 217. KÁRBU, 27° 35′; 85° 12′, in Nepál, a village S. of Kathmándu, on the eastern road from Kathmándu to Kulikhána.

Loc. 1) *Ruins of a fort* . . . . . 5,842 ft. Schl., Herm.

10, Pistor. 1857, March 10, 6h 45m P.M. *A.* 24 260; 14 1; 100. Calcutta 29·914; 67 3; 92.

Loc. 2) *Mean height of the village* . . . . . 5,734 ft. Schl., Herm.

= 108 ft. below the fort; by aneroid.

„ 3) *Level of the river* . . . . . 4,981 ft. Schl., Herm.

= 753 ft. below the village; by aneroid.

„ 4) *Betel palm in a garden* . . . . . 5,820 ft. Schl., Herm.

= 22 ft. below the fort; directly measured.

The locality of this palm is one of the highest in the environs.

No. 218. MARIBÚ, 27° 45′; 85° 11′, in Nepál, a village N. of Kathmándu, near Dharamthálli.

Loc. *Mean height of the village* . . . . . 4,680 ft. Schl., Herm.

By trigonometrical determination from the base line near the Residency at Kathmándu.

No. 219. CHÁMPA DÉVI, 27° 38′; 85° 10′, in Nepál, a peak E. of Chandragíri.

Loc. *Temple on the top of the mountain* . . . . . 7,320 ft. Schl., Herm.

By trigonometrical determination from the base line near the Residency at Kathmándu.

No. 220. MAHARÁNI-KA-PÁUA, 27° 50′; 85° 10′, in Nepál, a sarái for travellers, on the road from Kathmándu to Noakót, viâ Borbándi crest.

Loc. *Highest point of the road where it leads over the western slopes of Kákani mountain* . . . . . 6,586 ft. Schl., Herm.

9, Pistor. 1857, Feb. 28, $4^h\ 5^m$ P.M. *A.* 23·603; 58·3; 74. Calcutta 29·718; 88·3; 54. − 66 = 6,605 ft. Pátna 29·556; 83·9; 45. − 64 = 6,566 ft.

No. 221. KÁULIA MOUNTAIN, 27° 47′; 85° 9′, in Nepál, N. of Kathmándu, the capital of Nepál . . . . . 6,977 ft. Schl., Herm.

9, Pistor. 1857, March 1, 4^h P.M. *A.* 23·339; 63·9; 60. Calcutta 29·749; 88·9; 30. − 70 = 6,988 ft. Pátna 29·627; 76·9; 47. − 68 = 6,932 ft.

By trigonometrical determination from the base line near the Residency the height was found to be 7,011 ft. We take the mean of the barometrical and trigonometrical values.

A large panorama was drawn by Hermann from the Káulia mountain (see panoramic profiles pp. 264 and 265).

No. 222. NAGÁRCHUN, 27° 45′; 85° 7′, in Nepál, a mountain N.W. of Kathmándu, in a rather isolated position . . . . . 6,728 ft. Schl., Herm

9, Pistor. 1857, Feb. 24, 2^h P.M. 23·552; 60·3; 77. Pátna 29 708; 75 1; 62. − 66.

Nos. 223-4. ÁKU PEAKS, in Nepál,
on a ridge, separating the Bóri-Gándak and the Áku rivers.

No. 223. ÁKU NORTH PEAK No. XXVI. ♁, 28° 23′·5; 85° 6′·8. 24,313 ft. G. T. S.

No. 224. ÁKU SOUTH PEAK No. XXVII. ♁, 28° 20′·7; 85° 4′·0. 23,313 ft. G. T. S.

In the Káulia panorama the Aku north peak is not visible, the south peak alone being seen.

No. 225. THANKÓT, 27° 41′; 85° 6′·5, in Nepál, a village on the Baghmátti, S.W. of Kathmándu, on the Chandragíri pass.

Loc. *The Súbah's house* . . . . . 5,388 ft. Schl., Herm.

10, Pistor. 1857, March 6, $3^h\ 45^m$ P.M. *A.* 24·804; 62·6; 70. Calcutta 29·890; 90·3; 60. − 53 ft.

No. 226. CHANDRAGÍRI RIDGE, 27° 40′; 85° 3′, in Nepál, crossed on the road from Kulikhána to Thankót.

Loc. 1) *Highest peak W. of the pass* . . . . . 7,499 ft. Schl., Herm.

10, Pistor. 1857, March 6, 11h 30m A.M. Loc. Corr. — 107 ft.
A. 23·013; 64·6; 45. Calcutta 29·910; 85·6; 40. — 75 = 7,526 ft. Pátna 29·766; 77·6; 32. — 73 = 7,472 ft.

Loc. 2) *Chandragíri pass* . . . . . 7,242 ft. Schl., Herm.

= 257 ft. below the peak; trigonometrically measured.

No. 227. KUMHÁRI PASS, 27° 50′; 85° 3′, in Nepál, S. of Noakót, leading to Noakót over a spur branching from the Birbándi ridge . . . . . ab. 5,900 ft. Schl., Res. O.

No. 228. KULIKHÁNA, 27° 36′; 85° 2′, in Nepál, on the Pínăni, with large elephant sheds.

Loc. *Mean height of the village* . . . . . 4,576 ft. Schl., Herm.

10, Pistor. 1857, March 11, 1h 15m P.M. *A.* 25·473; 63·3; 30. Calcutta 29·901; 77·7; 50. — 46 = 4,557 ft.
Pátna 29·820; 70·3; 46. — 45 = 4,595 ft.

No. 229. CHITLÓNG, 27° 39′; 85° 2′, in Nepál, a village on the road from Kulikhána to Noakót, which passes over the western continuation of the Chandragíri mountain.

Loc. 1) *Mean height of the village* . . . . . 4,830 ft. Schl., Res. O.

„ 2) *Dúna Biási pass, N. of Chitlóng* . . . . . ab. 8,000 „ Schl., Res. O.

It seems to exceed in height Chandragíri pass; my information is derived from natives, who were unable to give any positive data in reference to its height.

Loc. 3) *Southern foot of the Dúna Biási pass in the Dúna Biási valley* . . . . . 3,650 ft. Schl., Res. O.

No. 230. △ MARKOPÁUA, 27° 37′; 85° 1′, in Nepál, a halting place on the way from Kulikhána to the Chandragíri pass.

Loc. *Government shed* . . . . . 4,850 ft. Schl., Herm.

= 274 ft. above Kulikhána; by aneroid.

No. 231. KALPÚ RIVER, 27° 47′; 85° 1′, in Nepál, S. of Dárkia, at the crossing of the Noakót road.

Loc. *Level of the river* . . . . . 3,680 ft. Schl., Res. O.

No. 232. TAMBAKHÁNA, 27° 36′; 85° 0′, in Nepál, at the northern foot of the Sissagárh pass . . . . . 4,455 ft. Schl., Res. O.

No. 233. SISSAGÁRH PASS, 27° 35′; 84° 59′, in Nepál, with a fort, dominating the route to Kathmándu, above Bhimpédi . . . . . 6,414 ft. Schl., Herm.

9, Pistor. 1857, Feb. 17, 12h Noon. *A.* 23·886; 58·6; 75. Calcutta 29·945; 83·5; 62. — 64 = 6,435 ft.
Pátna 29·809; 72·2; 68. — 62 = 6,393 ft.

No. 234. CHISAPÁNI, 27° 38′; 84° 59′, in Nepál, at the southern slope of the Sissagárh pass . . . . . 5,430 ft. Schl., Res. O.

No. 235. BHIMPÉDI, 27° 33′; 84° 58′, in Nepál, at the northern foot of the Chandragíri pass . . . . . 3,644 ft. Schl., Herm.

9, Pistor. 1857, Feb. 17, 9h 30m A.M. *A.* 26·378; 53·2; 86. Calcutta 29·971; 78·1; 80 = 3,644 ft.
Pátna 29·844; 70·2; 75 = 3,644 ft.

No. 236. NOAKÓT, 28° 0′; 84° 58′, in Nepál, on the left side of the Trissulgánga valley.

Loc. *Level of the river* . . . . . 1,641 ft. Schl., Herm.
= 250 ft. above Hetáunda; by aneroid.

No. 237. HETÁUNDA, 27° 26′; 84° 52′, in Nepál, a fortified village on the left bank of the Rápti, in the Tarái, with elephant sheds.

Loc. 1) *Mean height of the village* . . . . . 1,391 ft. Schl., Herm.

9, Pistor. 1857, Feb. 16, 6h P.M. *A.* 28·457; 59·5; 91. Calcutta 29·864; 77·0; 84. — 0 = 1,387 ft.
10, Pistor. „ March 12, 2h „ „ 28·536; 78·8; 74. „ 29·944; 79·9; 71. — 27 = 1,386 „
Pátna 29·809; 71·7; 69. — 25 = 1,401.

Loc. 2) △ *Makvanpúra, a halting station, S. of Hetáunda* . . 1,367 ft. Schl., Herm.
= 24 ft. below Hetáunda; by aneroid.

No. 238. CHÍRIA GHÁT (pass), 27° 21′; 84° 50′, in Nepál, leading over the south-western end of the Chíria ghát range . . . . . 2,262 ft. Schl., Herm.

9, Pistor. 1857, March 12, 4h 30m P.M. *A.* 27 678; 70·9; 80. Calcutta 29 903; 81 3; 80 = 2,260 ft.
Pátna 29·771; 72·8; 76 = 2,263 ft.

The Chíria ghát range is a part of the line of sandstone hills which are met with all along the southern foot of the Himálaya. Schl., Herm.

Loc. 2) *Secondary pass, N. of the Chíria ghat* . . . . . 1,632 ft. Schl., Herm.

9, Pistor. 1857, March 12, 2h P.M. *A.* 28·327; 72·0; 75. Pátna 29·807; 71·7; 73.

No. 239. Bíchia Koh, 27° 15′; 84° 50′, in Nepál, at the centre of the Tarái, S. of Hetáunda.

Loc. 1) *Thanadár's house* . . . . . 1,042 ft. Schl., Herm.

9, Pistor. 1857, Feb. 16, 10^{h} A.M. *A.* 28·957; 70·0; 60. Pátna 29·859; 68·1; 76.

Nos. 240-2. Yássa Peaks, in Nepál.

No. 240. Yássa South Peak No. xxviii. ⨁, 28° 26′·0; 84° 37′·4. 25,818 ft. G. T. S.

No. 241. Yássa Central Peak No. xxix. ⨁, 28° 30′·2; 84° 33′·1. 25,729 ft. G. T. S.

No. 242. Yássa North Peak No. xxx. ⨁, 28° 33′·0; 84° 32′·7. 26,680 ft. G. T. S.

The central peak is hidden in the panorama behind the eastern one.

The Yássa peaks are powerful prominences of a ridge between the Gándi and Darámbi rivers, and show very large snow-clad surfaces in the Káulia panorama. In consequence of their comparatively great difference of latitude, and of their relative position to the central point of the panorama, the peak farthest east is seen to the left. Schl., Herm.

Nos. 243-5. Barathór Peaks, in Nepál.

No. 243. Barathór East Peak No. xxxiii. ⨁, 28° 29′·4; 84° 10′·5. 22,947 ft. G. T. S.

No. 244. Barathór Central Peak No. xxxiv. ⨁, 28° 32′·1; 84° 6′·4. 26,069 ft. G. T. S.

No. 245. Barathór West Peak No. xxxv. ⨁, 28° 32′·2; 84° 4′·1. 24,718 ft. G. T. S.

These peaks are not visible in the Káulia panorama, being concealed by the Pāchsankóla ridge (= 500 rivers ridge). Barathór, I was told, signifies "Great Peaks," but it might also be referred to a shepherd's halting place of this name at their foot; in the latter case the meaning would be "very little, very barren." Not visible in the Káulia panorama, being concealed by the Pāchsaukóla ridge. Schl., Herm.

Nos. 246-51. Morshiádi Peaks, in Neplá

Lat. N. 28° 35′·0 to 28° 39′·3. Long. E. Gr. 83° 58′·5 to 83° 42′·9.

No. 246. Morshiádi Peak No. xxxvi. ⨁, 28° 35′·0; 83° 58′·5. 24,780 ft. G. T. S.

No. 247. Morshiádi Peak No. xxxvii. ⨁, 28° 29′·7; 83° 56′·0. 22,964 ft. G. T. S.

No. 248. MORSHIÁDI PEAK No. XXXVIII. ♆, 28° 29′·9; 83° 55′·9. 22,986 ft. G. T. S.

No. 249. MORSHIÁDI PEAK No. XXXIX. ♆, 28° 35′·7; 83° 48′·4. 20,522 ft. G. T. S.

No. 250. MORSHIÁDI PEAK No. XL. ♆, 28° 31′·1; 83° 47′·5. 23,641 ft. G. T. S.

No. 251. MORSHIÁDI PEAK No. XLI. ♆, 28° 39′·3; 83° 42′·9. 22,471 ft. G. T. S.

I adopted for this group the name of the principal river which drains its glaciers; only one peak, No. XXXVII., is visible in the Káulia panorama, over the central part of the Pāchsaukóla ridge. Schl., Herm.

No. 252. DHAVALAGÍRI, or DHOLAGÍRI (No. XLII. ♆), 28° 41′·8; 83° 28′·7, in Nepál. 26,826 ft. G. T. S.

The most southern and eastern of the Narayáni group of snow peaks. The Narayáni river, which finds a way between these peaks from the northern part of the valley, where the inhabitants, climate, and scenery, are all Tíbetan, is also called Saligrám river, from the numerous fossils (ammonites) which it carries down to the lower parts of Nepál. Dhavalagíri, one of the first Himálayan peaks of considerable elevation measured by Colonels Crawford and Colebroke,[1] was for a long time considered the highest mountain of the globe. In the Káulia panorama, its inclinations are not very steep. Schl., Herm.

Nos. 253-61. NARAYÁNI PEAKS, in Nepál.

Lat. N. 28° 46′·0 to 28° 40′·0. Long. E. Gr. 83° 22′·4 to 83° 5′·0.

No. 253. NARAYÁNI PEAK No. XLIII. ♆, 28° 45′·8; 83° 22′·4. 25,456 ft. G. T. S.

No. 254. NARAYÁNI PEAK No. XLIV. ♆, 28° 45′·2; 83° 21′·8. 25,299 ft. G. T. S.

No. 255. NARAYÁNI PEAK No. XLV. ♆, 28° 44′·0; 83° 20′·9. 24,912 ft. G. T. S.

No. 256. NARAYÁNI PEAK No. XLVI. ♆, 28° 44′·1; 83° 17′·9. 25,095 ft. G. T. S.

No. 257. NARAYÁNI PEAK No. XLVII. ♆, 28° 40′·5; 83° 15′·7. 23,565 ft. G. T. S.

No. 258. NARAYÁNI PEAK No. XLVIII. ♆, 28° 43′·9; 83° 11′·7. 24,181 ft. G. T. S.

[1] See the interesting memoir on the height of the Himálaya mountains, by H. T. Colebroke, in Vol. XII. of the Asiatic Researches.

No. 259. NARAYÁNI PEAK No. XLIX. ✝, 28° 44′·9; 83° 7′·9. 23,779 ft. G. T. S.

No. 260. MACHIPÚCHA, or NARAYÁNI PEAK No. L. ✝, 28° 44′·6; 83° 6′·1. 21,727 ft. G. T. S.

No. 261. NARAYÁNI PEAK No. LI. ✝, 28° 46′·0; 83° 5′·0. 21,472 ft. G. T. S.

This group is situated in the western part of the snowy ridge which is seen in the Káulia panorama; its angular height is still very considerable. Owing to the steepness of its flanks, Machipúcha is a particularly well defined object. Schl., Herm.

No. 262. CHAURÍSSI PEAK (No. LII. ✝), 28° 49′·7; 82° 36′·1, in Nepál, E. of the ridge which forms the western frontier of the Saptgándaki province of Nepál 19,415 ft. G. T. S.

Visible as the last snowy peak to the west in the Káulia panorama. Schl., Herm.

No. 263. ÁPI PEAK, 30° 0′; 80° 57′, in Nepál, E. of the Káli and S.W. of the Yári pass . . . . . 22,799 ft. Webb.

Webb, who marks this peak XXIII, gives Lat. N. 29° 59′·33; Long. E. Gr. 80° 44′. The values we adopt are from Major Thuillier's "Map of Nepál. Calcutta, 1855." Schl., Rob.

This peak is visible in the Chíner panorama.

No. 264. BIÁNS RÍKHI PEAK, 30° 10′; 80° 54′, in Nepál, E. of the Káli. 19,929 ft. I. A. 66.

Not distinctly visible in the Chíner panorama. Schl., Ad.

Nos. 265-6. KUNLÁS PEAKS, in Nepál, E. of the Káli.

No. 265. KUNLÁS EAST PEAK, 30° 13′; 80° 54′ . . . 21,669 ft. I. A. 66.

No. 266. KUNLÁS WEST PEAK, 30° 13′; 80° 53′ . . . 22,513 ft. I. A. 66.

In the Chíner panorama the Kunlás peaks are prominences of comparatively little height, on account of their considerable distance. Schl., Ad.

No. 267. KURTÉKH PEAK, 30° 8′; 80° 51′, in Nepál, near the left bank of the Káli.

Loc., *Top of the peak* . . . . . 15,817 ft. I. A. 66.

No. 268. RAULAKÓT, 29° 36′; 80° 32′, in Nepál, E. of the Káli.

Loc. *Fort* . . . . . 8,363 ft. I. A. 66.

No. 269. CHARALÉKH, 29° 36′; 80° 26′, in Nepál, 3 miles E. of the Káli.

Loc. *Mean height of the village* . . . . . 6,616 ft. I. A. 66.

No. 270. GŌL LEKH MOUNTAIN, 29° 29′; 80° 24′, in Nepal, 3 miles E. of the Káli.

Loc. *Top of the mountain* . . . . . 8,267 ft. Webb.

AREA VIII.

WESTERN HIMÁLAYA, FROM KĂMÁON TO HAZÁRA.

Diagonal, from south-east to north-west: Almóra viâ Símla and Srinágger to Rajáur.

The geographical provinces of this area, the western termination of which we consider at the same time as the end of the Himálaya, are the following:

1. Kămáon,	5. Chámba,	9. Kishtvár,
2. Gărhvál,	6. Jámu,	10. Kashmír,
3. Símla,	7. Rajáuri,	11. Márri.
4. Kúlu,	8. Lahól,	

Notwithstanding its great extent, and the variety of its physical features, the hypsometrical details[1] are more numerous and complete than for the Eastern Himálaya. Not only were some of the provinces of this area, as Kămáon and Gărhvál, among the very first explored by Europeans, but they were also easier of access, parts of them, as early as 1817, having become subject to British rule.

The compilation of the heights situated in this area, proved to be one of the most laborious tasks in the working out of the present volume; at first it seemed scarcely possible to decide with any certainty upon the original observer. In most cases, the heights already to be found in various books are quoted without the name of the authority upon which they are based; and it was only by carefully tracing back the determinations to their very earliest sources, that we were finally enabled to assign them to the right persons. Wherever one place has been determined by various observers, we have given the result obtained by each,[2] though, from the nature of the instruments at their disposal, it is no matter for surprise, that discrepancies, sometimes of considerable magnitude, frequently occur.

[1] An enumeration of the various materials is given pp. 8 and 9.

[2] In the Journal of the Royal Geographical Society of London, 1834, Vol. IV. p. 376, et seq., Capt. Webb gives a list of places determined by him, all of which we could not embody, as he omits to state which of the various results obtained by him for the same places he considers as the final one.

A great many of the peaks situated within this area have been recently determined by the Great Trigonometrical Survey, and we trust that we have been successful in our endeavours to identify them with those previously fixed by other observers, this being a point of some importance for the geographer.

The values of latitudes and longitudes, as formerly laid down by Herbert and Hodgson, agree in general to a remarkable extent with those of the G. T. S.; but as these officers had scarcely any opportunity for taking *reciprocal*, and none whatever for obtaining *simultaneous* observations of the refraction,[1] their heights are somewhat at variance with the more recent determinations of the latter.

With reference to the general hypsometrical condition of this extensive area, it is worth mentioning, that none of the peaks attain so stupendous an elevation as that of Gaurisánkar, Dápsang, or Kanchinjínga; the highest peak, the Nánda Dévi, being 25,749 feet high (3,253 feet less than Gaurisánkar). The peaks above 23,000 feet in height are only few in number, though the passes, particularly those leading to Tíbet, are scarcely less elevated than the most considerable in the Eastern Himálaya. As a remarkable pass may be mentioned the Íbi Gámin pass, 20,459 feet high, the highest we ever had occasion to cross. Though known to the natives of the Mána and Bádrinath villages, some of whose inhabitants ventured to cross it about 36 years ago, the pass was found to be so difficult of access, that its uselessness as a commercial route at once became apparent.[2]

Throughout the Himálaya, the valleys, with the exception of some few lacustrine basins, now drained off, as Kashmír and Kathmándu, are narrow and steep in their lower part, the powerful erosion of the rivers having materially modified their forms. The villages also are in most cases built considerably above the level of the river, sometimes on terraces remaining within the eroded channel, but more generally upon the slopes above the erosion. Wherever it was possible, we endeavoured to ascertain the relative height of the village above the river.

Four panoramas, taken respectively from the Chíner near Nainitál, from the Kidarkánta in Gărhwál, from the Jáko near Símla, and from the Nunevára in Kashmír, will, we hope, materially assist the reader in better defining the hypsometrical character of this area.

[1] Simultaneous observations were first taken, as far as we know, by Sir George Everest, the late well known Surveyor General of India.

[2] See No. IV. of our "Reports." Ágra, Dec. 1855.

No. 1. GÁRBIA, 30° 7′; 80° 48′, in Nepál, a village on the left bank of the Káli.

Loc. *Mean height of the village* . . . . . 10,272 ft. Webb.

No. 2. NAMJÁNG PEAK, 30° 2′; 80° 46′, in Nepál, 2 miles E. of the Káli.

Loc. *Top of the peak* . . . . . 18,470 ft. Webb.

No. 3. GOLÁGHI, or GÚLA GHĀT PEAK, 30° 8′; 80° 39′, in Kămáon, E. of the Dáuli.

Loc. *Top of the peak* . . . . . 21,222 ft. Webb.

ditto . . . . . 21,258 „ I. A. 66.

In the Chíner panorama this peak is visible. Schl., Ad.

No. 4. TÍTILA, 30° 3′; 80° 38′, in Nepál, a village between the Dáuli and Káli.

Loc. *Mean height of the village* . . . . . ab. 8,000 ft. Strach.

No. 5. △ KÚNTI, 30° 18′; 80° 38′, in Nepál, on the left bank of the Káli.

Loc. *Encampment* . . . . . ab. 13,000 ft. Strach.

No. 6. KÉLA, or SIALPÁNT, 29° 57′; 80° 34′, in Kămáon, near the confluence of the Dáuli and the Káli.

Loc. 1) *Mean height of the village* . . . . . ab. 4,750 ft. Strach.

„ 2) *Confluence of the Relagárh with the Káli* . . . . . 3,794 „ Webb.

„ 3) *Bridge over the Káli near Kéla* . . . . . 3,882 „ Webb.

No. 7. TÁNGLANG PASS, 30° 1′; 80° 34′, in Kămáon, 2 miles E. of the Dáuli.

Loc. *Top of the pass* . . . . . 11,722 ft. Webb.

No. 8. JÁULI, 29° 58′; 80° 33′, in Kămáon, near the left bank of the Dáuli.

Loc. 1) *Mean height of the village* . . . . . 6,380 ft. Webb.

„ 2) *Simtónka mountain* . . . . . 10,734 „ Webb.

No. 9. RÁNI SHÍKAR MOUNTAIN, 29° 47′; 80° 32′, in Nepál, 4 miles E. of the Káli.

Loc. *Top of the mountain* . . . . . 10,204 ft. Webb.

No. 10. JÚMA, 29° 56′; 80° 32′, in Kămáon, a village near the right bank of the Káli.
Loc. *Mean height of the village* . . . . . 5,759 ft. Webb.

No. 11. RÁTHI, 29° 55′; 80° 31′, in Kămáon, a village on the right bank of the Káli.
Loc. *Mean height of the village* . . . . . 6,073 ft. Webb.

No. 12. GOH, 30° 15′; 80° 31′, in Kămáon, district of Dárma, a village on the left bank of the Dáuli . . . . . 11,561 ft. Webb.

No. 13. SHÍKA, or SHIKÁR MOUNTAIN, 29° 45′; 80° 30′, in Nepál, 3 miles S. of the Káli . . . . . 9,248 ft. Webb.

No. 14. LÓBUG, or LÉBON PASS, 30° 20′; 80° 30′, in Kămáon, in the ridge between the Káli and Dáuli . . . . . 18,942 ft. I. A. 66

No. 15. △ SANGCHÚNGMA, 30° 20′; 80° 29′, in Kămáon, on the right bank of the Káli . . . . . ab. 14,000 ft. Strach.

No. 16. CHÍPALA PEAK, 29° 55′; 80° 25′, in Kămáon, 4 miles W. of the Káli.
Loc. *Top of the peak* . . . . . 13,527 ft. Webb

No. 17. BAINTHÁRI, 29° 33′; 80° 24′, in Kămáon, 2 miles E. of the Káli.
Loc. *Fort* . . . . . 5,615 ft. Webb

No. 18. JHUL GHĀT, 29° 34′; 80° 23′, in Kămáon, on the Káli.
Loc. *Level of the Káli* . . . . . 1,789 ft. I. A. 66

No. 19. MAJARKÁNDA, 29° 34′; 80° 22′, in Kămáon, near the right bank of the Káli, W. of Bainthári . . . . . 3,620 ft. Webb.

Nos. 20-1. CHAUDÁNS PEAKS, in Kămáon, near the left bank of the Dáuli.

No. 20. CHAUDÁNS EAST PEAK, 30° 16′·3; 80° 26′·8 P. 19,569 ft. Webb.
Webb, who marks this peak XXII., gives Lat. N. 30° 6′ 19″; Long. E. Gr. 80° 30′ 23″.

No. 21. CHAUDÁNS WEST PEAK, 30° 16′·7; 80° 24′·1 F. 19,171 ft. Webb.

Webb, who marks this peak XXI., gives Lat. N. 30° 6′ 42″; Long. E. Gr. 80° 28′ 51″.

In the Chíner panorama, the Chaudáns peaks form a broad massif, with one pyramid a little detached from the general crest. Schl., Rob.

No. 22. ASKÓT, 29° 46′; 80° 19′, in Kămáon, a village 2 miles W. of the Káli.

Loc. *Mean height of the village* . . . . . 5,089 ft. Webb.

No. 23. DHĂJ MOUNTAIN, 29° 39′; 80° 16′, in Kămáon, between the Ramgánga and Káli . . . . . 8,240 ft. Webb.

No. 24. SATGÁRH PASS, 29° 40′; 80° 15′, in Kămáon, leading from the Ramgánga to the Káli valley . . . . . ab. 6,000 ft. Strach.

No. 25. HŪM MOUNTAIN, 29° 59′; 80° 15′, in Kămáon, near the right bank of the Góri . . . . . 9,919 ft. Webb.

No. 26. BÁNKU MOUNTAIN, 29° 21′; 80° 12′, in Kămáon, 4 miles W. of the Sárju, or Ghágra . . . . . 6,133 ft. Webb.

No. 27. SIRAKÓT, 29° 48′; 80° 12′, in Kămáon, between the Ramgánga and Góri.

Loc. *Temple* . . . . . 6,934 ft. Webb.

No. 28. THAKÍL MOUNTAIN, 29° 30′; 80° 11′, in Kămáon, 4 miles N. of the Sárju, or Ghágra . . . . . 8,221 ft. Webb.

No. 29. PETORAGÁRH, 29° 36′; 80° 11′, in Kămáon, about 8 miles W. of the Káli.

Loc. *Fort* . . . . . 5,549 ft. Webb.

„ *Undefined* . . . . . 5,462 „ I. A. 66.

No. 30. BÁGHA LING, 29° 48′; 80° 11′, in Kămáon, between the Ramgánga and Góri.

Loc. *Temple* . . . . . 7,719 ft. Webb.

„ *ditto* . . . . . 7,635 „ I. A. 66.

No. 31. CHÁRI MOUNTAIN, 29° 35′; 80° 10′, in Kămáon, between the Ramgánga and Káli.
Loc. *Top of the mountain* . . . . . 6,616 ft. Webb.

No. 32. BHÁGA LING, 29° 47′; 80° 10′, in Kămáon, between the Ramgánga and Góri.
Loc. *Temple* . . . . . 7,635 ft. I. A. 66.

No. 33. ÁSU CHÚLA, 29° 38′; 80° 9′, in Kămáon, 2 miles E. of the Ramgánga.
Loc. *Temple* . . . . . 7,107 ft. Webb.

No. 34. KANTAGÁŬ, 29° 30′; 80° 8′, in Kămáon, on the left bank of the Sárju, below its junction with the Ramgánga.
Loc. *Dak bángalo* . . . . . ab. 3,900 ft. Strach.

No. 35. RENGHÁLIA, 29° 52′; 80° 8′, in Kămáon, on the left bank of the Ramgánga.
Loc. *Level of the Ramgánga* . . . . . 2,723 ft. I. A. 66.

Nos. 36-8. PĂCH CHÚLI PEAKS, in Kămáon, in the range between the Dáuli and Góri.

No. 36. PĂCH CHÚLI SOUTH PEAK, 30° 18′·0; 80° 7′·6 P. 20,479 ft. Webb.
Webb, who marks this peak XX., gives Lat. N. 30° 9′ 28″; Long. E. Gr. 80° 16′ 41″.

No. 37. PĂCH CHÚLI CENTRAL PEAK, 30° 20′·6; 80° 6′·5 P. 22,707 ft. Webb.
Webb, who marks this peak XIX., gives Lat. N. 30° 12′ 15″; Long. E. Gr. 80° 15′ 43″.

No. 38. PĂCH CHÚLI NORTH PEAK, 30° 23′·1; 80° 3′·6 P. 21,511 ft. Webb.
Webb, who marks this peak XVIII., gives Lat. N. 30° 14′ 33″; Long. E. Gr. 80° 12′ 41″.
The Păch Chúli peaks form a prominent object in the Chíner panorama. Schl., Ad.

No. 39. KALINÁGH MOUNTAIN, 29° 52′; 80° 6′, in Kămáon, 2 miles W. of the Ramgánga.
Loc. *Top of the mountain* . . . . . 7,470 ft. Webb.

No. 40. CHAMPAVÁT, 29° 20′; 80° 5′, in Kămáon, about 40 miles E. of Nainitál.
Loc. *Fort* . . . . . 5,539 ft. Webb.

No. 41. LOHUGHÁT, 29° 24′; 80° 4′, in Kămáon, E. of Fort Hastings.
Loc. *European bángalo* . . . . . 5,649 ft. Webb.

No. 42. DHARGÁRA, 29° 28′; 80° 4′, in Kămáon, about 6 miles N. of Lohughát.

Loc. *Dāk bángalo* . . . . . ab. 4,500 ft. Strach.

No. 43. BIRIMDÉO, 29° 6′; 80° 2′, in Kămáon, in the Bhábar Tarái, at the right bank of the Sárju, or Ghágra.

Loc. *Level of the Sárju, or Ghágra* . . . . . 798 ft. I. A. 67.

No. 44. LÍTKI, 30° 1′; 79° 55′, in Kămáon, N.E. of Nakóri.

Loc. *Undefined* . . . . . 5,830 ft. I. A. 66.

No. 45. SHÍMPTI, 30° 5′; 80° 1′, in Kămáon, the principal place of the district of Munshári.

Loc. *Grove of trees* . . . . . 5,953 ft. Schl., Rob.

1. Adie. 1855, May 27, 9h A.M. *A.* 24·059; 66 2. Símla 23 123; 64·8 = 5,938 ft. Mássúri 23 535; 66 7 = 5,968 ft.

No. 46. MÁLJU, 30° 8′; 80° 1′, in Kămáon, N. of Shímpti, in the district of Munshári.

Loc. *Mean height of the village* . . . . . 6,480 ft. Schl., Rob.

1. Adie. 1855, May 28, 3h P.M. *A.* 23·548; 74 1. Símla 23·063; 75 0 = 6,460 ft. Mássúri 23·473; 68 4 = 6,499 ft.

No. 47. RÁI MOUNTAIN, 29° 42′; 80° 0′, in Kămáon, between the Sárju and Ramgánga.

Loc. *Top of the mountain* . . . . . 7,869 ft. Webb.

No. 48. BÚDERA, 29° 51; 80° 0′, in Kămáon, a village E.N.E. of Bágeser.

Loc. *Undefined* . . . . . 5,803 ft. Webb.

No. 49. JAKHÚN, 29° 48′; 79° 59′, in Kămáon, a village about 18 miles E. of Bágeser.

Loc. *Mean height of the village* . . . . . 4,512 ft. Webb.

No. 50. CHUNAPÁNI, 29° 7′; 79° 58′, in Kămáon, in the Bhábar Tarái, S. of Tímla.

Loc. *Fort* . . . . . 1,500 ft. I. A. 67.

No. 51. TÍMLA, 29° 10′; 79° 58′, in Kămáon, in the Bhábar Tarái, near the southern foot of the Himálaya.

Loc. *Fort* . . . . . 3,821 ft. I. A. 67.

No. 52. GIRGÁŨ, 30° 2′; 79° 58′, in Kămáon, district of Munshári.

Loc. 1) *Mean height of the village* . . . . . 6,347 ft. Schl., Rob.

4, Adie. 1855, May 25, 12h Noon. *A.* 23 914; 78·8. Banóg 22·957; 76·0. — 23 ft.

Loc. 2) *Kalamúni pass, N.E. of Girgáũ* . . . . . 9,183 ft. Schl., Rob.

4, Adie. 1855, May 25, 2h 40m P.M. *A.* 21·623; 67·6; 28. Banóg 22·917; 76·8; 31. — 32 ft.

Loc. 3) *Spring "Mángala ka páni", on the N.E. slopes of the Kalamúni pass* . . . . . 8,160 ft. Schl., Rob.

= 1,023 ft. below the Kalamúni pass; by aneroid.

At this elevation is also the upper limit of roses.

No. 53. HARTÓL, or LIPÚKI THAN PASS, 30° 9′; 79° 58′, in Kămáon, S.W. of the Górí.

Loc. *Top of the pass* . . . . . 8,996 ft. Schl., Rob.

„ *ditto* . . . . . 9,127 „ I. A. 66.

4, Adie. 1855, May 29, 7h 30m A.M. *A.* 21·567, 54 7; 40. Símla 23 091; 61 5; 68. + 38 ft

No. 54. DHÁNSI PEAK, 30° 21′·2; 79° 58′·0 E, in Kămáon, on the left side of the Górí valley, nearly opposite △ Bágdoár . . . . . 19,225 ft. Webb.

Webb, who marks this peak XVII., gives Lat. N. 30° 11′ 15″; Long. E. Gr. 80° 7′ 10″. Not visible in the Chiner panorama. It is the highest peak near the left bank of the Górí. Schl., Ad.

No. 55. △ MÁLLA SHÁLLONG (the Upper Shállong), 30° 40′; 79° 58′, in Kamáon, on the left bank of the Gúnka, an affluent of the Górí.

Loc. 1) *Pasture ground* . . . . . 13,225 ft. Schl., Rob.

6, Adie. 1855, July 7, 7h 15m A.M. *A.* 18·516; 50 9; 66. Símla 23·060; 62 6; 93. + 61 ft.

Loc. 2) *Upper limit of shrubs* . . . . . 13,329 ft. Schl., Rob.

„ 3) *Tálla Shállong (the Lower Shállong)* . . . . . 12,813 „ Schl., Rob.

6, Adie. 1855, July 6, 7h P.M. *A.* 18·775; 53·8; 87. Símla 23 044; 68 0; 86.

„ 4) *Spring below Tálla Shállong* . . . . . 12,580 ft. Schl., Ad.

= 233 ft. below Tálla Shállong; by aneroid.

No. 56. DINGATHÁR, 29° 47′; 79° 57′, in Kămáon, a village E. of Bágeser.

Loc. *Undefined* . . . . . 4,296 ft. Webb.

No. 57. RILKÓT, 30° 28′; 79° 57′; in Kămáon, S. of Mílum.

Loc. 1) *Level of the Górí.* . . . . . 10,072 ft. Schl., Rob.

2, Pistor. 1855, May 30. *B* = Símla; *C* = Mássúri.

7h P.M. *A*. 20·678; 56·8; 32. *B*. 23·048; 70·5; 49. — 30 = 10,085 ft. *C*. 23·426; 67·3; 68. — 35 = 10,058 ft.
8h „ „ 20 698; 54 3; 30. „ 23·056; 66·4; 55. — 0 = 10,073 „

Loc. 2) △ *Jelábu, pasture ground, right bank of the Góri* 9,750 ft. Schl., Rob.
— 322 ft. below Rilkót; by aneroid.

„ 3) *Spring "Zôla páni", between △ Jelábu and Rilkót* 10,140 „ Schl., Rob.
390 ft. above △ Jelábu; by aneroid.

„ 4) *Spring, a little below Rilkót* . . . . . 10,020 „ Schl., Rob.
— 52 ft. below Rilkót; by aneroid.

No. 58. △ SAMGÁNG, 30° 37′; 79° 57′, in Kámáon, pasture ground, right bank of the Gúnka, N.N.E. of Mílum.

Loc. 1) *Pasture ground* . . . . . 12,146 ft. Schl., Rob.
6, Adie. 1855, July 6, 11h 15m A.M. *A*. 19·248; 69 3; 55. Símla 23 075; 66·4; 90. — 85 ft.

Loc. 2) *Confluence of the Gúnka and Koálong below △ Samgáng* . . . . . 11,895 ft. Schl., Ad.
— 251 ft. below △ Samgáng; by aneroid.

No. 59. HÁSALING, or BÁGDOÁR PEAK, 38° 22′·1; 79° 56′·4 E, in Kámáon, left side of the Góri valley.

Loc. *Top of the peak* . . . . . 18,071 ft. Webb.
„ *ditto* . . . . . 18,166 „ I. A. 66.
Webb, who marks this peak XVI., gives Lat. N. 30° 12′ 3″; Long. E. Gr. 80° 5′ 27″.
Visible in the Chíner panorama, just before the Dhánsi peak. Schl., Ad.

No. 60. PHÁRKA, 29° 23′; 79° 56′, in Kámáon, near Fort Hastings, E. of Nainitál.

Loc. *Dak bángalo* . . . . . 5,914 ft. Webb.

No. 61. MÁRTOLI, 30° 30′; 79° 56′, in Kámáon, on the right bank of the Góri, S.S.E. of Mílum.

Loc. 1) *Open place in the village* . . . . . 10,955 ft. Schl., Rob.
2, Pistor. 1855, May 31, 8h A.M. *A*. 20 083; 56·3; 40. Símla 23·063; 62·2; 64. + 38 ft.

Loc. 2) *Undefined* . . . . . 10,514 ft. I. A. 66.

„ 3) *Confluence of the Mártoli and Góri* . . . . . 10,320 „ Schl., Rob.
— 635 ft. below the village of Mártoli; by aneroid.

„ 4) *Lower limit of Dábang, a plant in the Góri valley* 10,850 „ Schl., Rob.
— 105 ft. below Mártoli; by aneroid.

No. 62. JÁNTI PASS, 30° 47′; 79° 56′, in Kămáon, rarely frequented, N.E. of the Úta Dhúra and Kiúngar pass.

Loc. 1) *Top of the pass* . . . . . 18,529 ft. Schl., Rob.

6, Adie. 1855, July 11.
10h A.M. *A.* 15·189; 34·5; 81. Simla 23·048; 68·4; 91 = 18,535 ft.
11h „ „ 15·189; 34 5; 83. „ 23·032; 69·3; 89 = 18,522 „

Loc. 2) *Snow limit on the western slopes of the pass* . . . 16,960 ft. Schl., Ad.
= 1,569 ft. below the top of the pass; by aneroid.

„ 3) *Highest phanerogamic plants on the western slopes of the pass* . . . . . 17,500 „ Schl., Ad.
= 1,029 ft. below the top of the pass; by aneroid.

„ 4) *Upper limit of grass vegetation on the western slopes of the pass* . . . . . 16,831 „ Schl., Ad.
= 500 ft. above △ Loáka; by aneroid.

No. 63. DŪR, 30° 1′; 79° 55′, in Kămáon, district of Munshári.

Loc. *Mean height of the village* . . . . . 4,125 ft. Schl, Rob
= 628 ft. above Tísum; by aneroid.

No. 64. ÚTA DHÚRA PASS, 30° 44′; 79° 55′, in Kămáon, N. of Milum, leading from Johár to Gnári Khórsum.

Loc. 1) *Top of the pass* . . . . . 17,627 ft. Schl., Rob.

„ *ditto* . . . . . 17,700 „ Strach.

6, Adie. 1855, July 7, 4h P.M. *A.* 15·744; 44 4; 52. Simla 23·036; 70 2; 85 = 17,661 ft.
Mässúri 23 390; 68 0; 89 = 17,592 ft.

Loc. 2) △ *Chim, southern foot of the pass and lower end of the glacier* . . . . . 16,250 ft. Schl., Ad
= 1,377 ft. below the top of Úta Dhúra pass; by aneroid.

„ 3) *Confluence of the Úta Dhúra and Lessór* . . . . . 13,589 „ Schl., Rob.

These rivers combined form the Gúnka, an affluent of the Góri.

6, Adie. 1855, July 7, 9h 30m A.M. *A.* 18·299; 58 5; 49. Simla 23·075; 65 8; 90 = 13,585 ft.
Mässúri 23·454; 67·3; 96 = 13,593 ft.

Loc. 4) *Northern foot of the pass and lower end of the glacier* 15,970 ft. Schl., Ad.
= 1,657 ft. below the top of the Úta Dhúra pass; by aneroid.

No. 65. PÁJU, 30° 33′; 79° 55′, in Kámáon, right bank of the Góri, 2 miles S. of Mílum.

Loc. *Mean height of the village* . . . . . 11,007 ft. Schl., Rob.

2, Pistor. 1855, May 31, 2h P.M. *A.* 20·035; 63 3; 28. Símla 23·060; 71·2; 46. — 40 ft.

No. 66. △ LOÃKA, 30° 46′; 79° 55′, in Kámáon, on the northern slopes of the Úta Dhúra pass, above the limit of shrubs.

Loc. *Encamping ground* . . . . . 15,831 ft. Schl., Rob.

6, Adie. 1855, July 8, 8h 15m A.M. *A.* 16·800; 46 2; 60. Símla 23 052; 64·4; 92.

No. 67. MÍLUM, 30° 34′·6; 79° 54′·8 E, in Kámáon, the highest and chief village in Johár.

Loc. 1) *Máni's house* . . . . . 11,265 ft. Schl., Ad. and Rob.

Barometers: 2, Pistor, and 6, Adie. Per. Corr. for Símla + 8 ft., for Massúri + 9 ft.

1855.	Hour	Mílum.	Símla.	Height.	Massúri.	Height.
	h					
June 3	9 A.M.	19 989; 65 8; 38			23·548; 61 7; 74	11,222
„ 4	9 „	19 950; 64·8; 49	23 158; 65 1; 60	11,281	23 556; 62·2; 76	11,288
„ 5	9 „	19·930; 50 4; 60	23 154; 65·8; 64	11,241	23·579; 62·6; 71	11,271
„ 9	10 „	19·981, 65 1; 26	23 146; 68 2; 76	11,238	23 528; 63·9; 87	11,218
„ 10	9 „	19·930; 63 3; 65	23 146; 66 6; 78	11,303	23 528; 61·7; 90	11,279
„ 10	10 „	19·922; 70 2; 41	23 127; 66 0; 80	11,317	23·520; 62 6; 90	11,315
„ 11	9 „	19·886; 60 4; 14	23 099; 63 0; 84	11,273	23 532; 61·7; 90	11,325
„ 11	10 „	19 902; 61·9; 49	23·102; 64·4; 83	11,269	23·520; 62 6; 90	11,300
„ 12	9 „	19 931; 58 5; 25			23·516; 63 1; 92	11,234
„ 12	10 „	19·938; 63 0; 17			22·504; 64 0; 92	11,238
„ 14	9 „	19·882; 63 0; 34	23 032; 63·1; 91	11,210		
„ 20	9 „	19 922; 65 8; 16	23 095; 64 2; 76	11,249	23·450; 65 5; 82	11,223
„ 20	10 „	19·922; 67 6; 27	23·106; 65 8; 76	11,275	23·457; 65 5; 82	11,237
„ 21	9 „	19 913; 51 8; 87	23·099; 67 3; 75	11,221		
„ 25	9 „	19 890; 63 7; 50	23 091; 67·3; 79	11,294	23 485; 65·5; 89	11,301
July 4	4 „	19 867; 62·4; 77	23·067, 67·6; 90	11,301	23·465; 65·5; 94	11,310
„ 5	3 P.M.	19 890; 59 2; 76	23·063; 67·5; 90	11,247	23 461; 65·5; 94	11,254
„ 5	4 „	19 894; 58 5; 78	23·060; 67 5; 90	11,234	23·457; 65 5; 95	11,242

Loc. 2) *Undefined* . . . . . 11,430 ft. Strach.

„ 3) *Bridge over the Góri at Mílum* . . . . . 11,080 „ Schl., Ad.

= 185 ft. below Máni's house at Mílum; trigonometrically measured.

Loc. 4) *Temple at Mílum* . . . . . 11,706 ft. Thorn.

„ 5) *Confluence of the Gúnka and Góri at Mílum* . . . 10,925 „ Schl., Rob.

= 340 ft. below Máni's house at Mílŭm; trigonometrically measured.

No. 68. LOÁ, 30° 26′; 79° 54′, in Kămáon, S. of the Loá glacier.

Loc. 1) *Large terrace of the village* . . . . . 11,540 ft. Schl., Ad.

6, Adie. June 1, 5h 30m P.M. *A.* 19 552; 45 1; 98. Símla 23·032; 71·4; 80. — 91 ft.

„ 2) *Undefined* . . . . . 12,228 ft. I. A. 66.

„ 3) *Lower end of the Loã glacier* . . . . . 14,208 „ Schl., Ad.

6, Adie. May 31, 3h 30m P.M. *A.* 17 922; 43·2; 20. Banóg 22·873; 74 0; 17. — 135 ft.

„ 4) △ *Nassapanpátti, a pasture ground W. of Loã* . . 13,404 ft. Schl., Ad.

6, Adie. June 1, 10h 45m A.M. *A.* 18 434; 57·6; 26. Símla 23·024; 63 3; 80. + 121 ft.

„ 5) *Level of the Shálang at Loã village* . . . . . 11,138 ft.

= 402 ft. below the terrace of the village; by aneroid.

No. 69. △ SHEM KÁRIK, 30° 31′; 79° 54′, in Kamáon, district of Johár, S. of Mílum, near the village of Páju.

Loc. 1) *Lower end of the glacier* . . . . . 12,798 ft. Schl., Rob

6, Adie. 1855, June 11, 9h A.M. *A.* 18·819; 57·2; 16. Mílum 19·886; 60 1, 44.

„ 2) *Spring in the Páju valley. Exposition North* . . . 12,100 ft. Schl., Ad

= 698 ft. below the lower end of the glacier, by aneroid.

„ 3) *Upper limit of white Rhododendrons. Exposition N* 14,861 ft. Schl., Rob.

6, Adie. 1855, June 10, 5h 30m P.M. *A.* 17 453; 38 8. Mílum 19 926; 56 [illegible]

„ 4) *Peak on the right side of the Páju glacier* . . . . . 17,601 ft. Schl., Rob.

6, Adie. 1855, June 10, 11h A.M. *A.* 15·831; 40·3; 31. Mílum 19 917; 67 6; 29 17,591 ft

„ „ „ 1h P.M. „ 15·816; 41·7; 24. „ 19 906; 66·7; 31 17,608 „

No. 70. MÁPAN, 30° 32′; 79° 54′, in Kămáon, 4 miles S. of Mílum.

Loc. *Mean height of the village* . . . . . 10,843 ft. Schl., Rob

2, Pistor. 1855, May 31, 1h P.M. *A.* 20·149; 62 2; 26. Símla 23·063; 70 2; 45 — 38 ft

---

No. 71. TÍSUM, 29° 56′; 79° 53′, in Kămáon, Ramgánga valley.

Loc. *Dharamsála* . . . . . 3,497 ft. Schl., Rob.

4, Adie. 1855, May 24, 3h P.M. *A.* 26 197; 84 9; 36. Símla 23·106, 76·5; 40. + 109 ft.

No. 72. Kiúngar Pass, 30° 49′; 79° 53′, in Kămáon, N.N.W. of the Úta Dhúra pass leading to Gnári Khórsum.

Loc. 1) *Top of the pass* . . . . . 17,331 ft. Schl., Ad.

„ 1) *ditto* . . . . . ab. 17,700 „ Strach.

6, Adie. 1855, July 12, 10h A.M. *A.* 15·906; 49 5; 79. Símla 23 036; 69·3; 90.

„ 2) △ *Súmdo, on the southern foot of the pass, above the limit of shrubs* . . . . . 14,651 ft. Schl., Ad.

6, Adie. 1855, July 11, 6h P.M. *A.* 17 548; 46 2; 82. Símla 23·032; 69·8; 88.

„ 3) *Confluence of two rivers at* △ *Súmdo* . . . . . 14,489 ft. Schl., Ad.

162 ft. below △ Súmdo; by aneroid.

„ 4) *Upper limit of grass vegetation on the northern slopes of the pass* . . . . . 15,810 ft. Schl., Rob.

— 1,521 ft. below the top of the pass; by aneroid.

„ 5) △ *Kiúngar, northern foot of Kiúngar pass* . . . . . 14,660 „ Schl., Rob.

1,150 ft. below the grass vegetation; by aneroid.

At △ Kiúngar is the upper limit of shrub vegetation on the northern slopes of the Kiúngar pass.

Loc. 6) *Confluence of two rivers below* △ *Kiúngar* . . . . . 14,549 ft. Schl., Rob.

— 111 ft. below △ Kiúngar; by aneroid.

No. 73. Jéta Báger, 29° 57′; 79° 52′, in Kămáon, E. of Nakóri, on the Mahargári, an affluent of the Ramgánga.

Loc. 1) *Lowest house* . . . . . 3,223 ft. Schl., Rob.

4, Adie. 1855, May 24, 6h A.M. *A.* 26·465; 65·1; 60. Símla 23 135; 63·0; 55 — 37 ft.

„ 2) *Patterkáni pass, W. of Jéta Báger* . . . . . 6,590 ft. Schl., Rob.

+ 3,367 ft. above Jéta Báger; by aneroid.

„ 3) *Spring at the foot of the Patterkáni pass* . . . . . 4,410 „ Schl., Rob.

— 2,180 ft. below the top of the Patterkáni pass; by aneroid.

No. 74. △ Róghas, 30° 39′; 79° 52′, in Kămáon, district of Johár, a halting place on the left side of the Mílum glacier.

Loc. 1) *Encampment* . . . . . 13,995 ft. Schl., Rob.

4, Adie. 1855, June 18, 10h A.M. *A.* 18·083; 56·3; 38. Mílum 19·930; 66·9; 24 = 13,989 ft.

„ „ „ 5h P.M. „ 18·040; 55·0; 51. „ 19·913; 56·6; 45 = 14,000 „

Loc. 2) *Mílum glacier at △ Changseldár, half a mile above the glacier's end* . . . . . 12,038 ft. Schl., Ad.

6, Adie. 1855, June 16, 12h 30m P.M. *A.* 19·339; 59·9. Mílum 19·878; 68·4.

„ 3) *Old lines of moraines* . . . . . 12,280 ft. Schl., Rob.

= 242 ft. above the glacier at △ Changseldár; by aneroid.

„ 4) *△ Biterguár, a pasture ground on the slopes on the left side of the Mílum glacier* . . . . . 14,594 ft. Schl., Rob.

6, Adie. 1855, June 18, 8h 30m A.M. *A.* 17·693; 51·4; 38. Mílum 19·957; 59 9; 48 = 14,595 ft.
△ Róghas 18·083; 51·6; 43 = 14,592 ft.

Loc. 5) *Opposite △ Biterguár, but on the same level with it; a lateral glacier joins the Mílum glacier* . . . 14,600 ft. Schl., Rob.

„ 6) *Upper limit of shrub-vegetation (Juniperus) above △ Biterguár. Exposition South* . . . . . 15,290 „ Schl., Rob.

= 696 ft. above △ Biterguár; by aneroid.

„ 7) *Ráta Dak, an isolated peak on the left side of the Mílum glacier, N.E. of △ Róghas* . . . . . 16,744 „ Schl., Rob.

6, Adie. 1855.

June 18, 1h P.M. *A.* 16·363; 54·7; 17. Mílum 19·910; 61 2; 37 = 16,737 ft. △ Róghas 18·083; 58·6; 47 — 16,767 ft.
„ 20, 9A.M. „ 16·347; 39·6; 61. „ 19·926; 65·8; 51 - 16,710 „
„ 20, 12 Noon. „ 16·374; 58·6; 31. „ 19·906; 68·4; 30 = 16,760 „

Loc. 8) *Upper margin of the Mílum glacier* . . . . . 17,812 ft. Schl., Ad.

6, Adie. 1855, June 19, 5h P.M. *A.* 15·686; 51·4; 4. Mílum 19 886; 57·4; 50.

„ 9) *Lower margin of the Mílum glacier* . . . . . 16,640 ft. Schl., Rob.

= 1,172 ft. below the upper margin; by aneroid.

„ 10) *Mílum darváza = top of firn-meer* . . . . . 18,625 ft. Schl., Rob.

6, Adie. 1855, June 19, 2h P.M. *A.* 15·209; 40·3; 34. Mílum 19·890; 63·3; 30 — 18,629 ft.
„ „ „ 3h „ „ 15·201; 40·6; 33. „ 19·886; 60·8; 31 = 18,620 „

No. 75. JÁGESAR MOUNTAIN, 29° 39′·0; 79° 51′·2 ♃, in Kămáon, 9 miles W. of the Sárju . . . . . 7,721 ft. G. T. S.

No. 76. NÁNDA KHĂT PEAK, 30° 24′·8; 79° 51′·0 ♓, in Kămáon, S.S.E. of the Nánda Dévi, and E. of the Trissúl peak . . . . . 22,491 ft. Webb.

The geographical co-ordinates given to this peak by Webb, to which he assigns the number XV., are: Lat. N. 30° 16′ 13″; Long. E. Gr. 79° 54′ 26″.

A very pointed pyramid in the Chíner panorama. Schl., Ad.

No. 77. LÚLAN GÁRHI, 29° 11′; 79° 50′, in Kămáon, in the Bhábar Tarái, near the southern foot of the Himálaya . . . . . 5,332 ft. I. A. 67.

No. 78. DEO DHÚRA, or DI, 29° 25′; 79° 50′, in Kămáon, about 30 miles E.N.E. of Nainitál.

Loc. *Dak bángalo* . . . . . 6,867 ft. Webb.

„ *ditto* . . . . . 6,780 „ I. A. 66.

No. 79. △ MÁRTOLI, 30° 13′; 79° 50′, in Kămáon, at the lower end of the Píndari glacier.

Loc. 1) *Lower end of the glacier, source of the Píndari* . . 11,492 ft. Schl., Ad.

„ *ditto* . . 11,300 „ Strach.

2,688 ft. below △ Sharági.

„ 2) △ *Shărágí, a pasture ground on the right side of the Píndari glacier* . . . . . 14,180 ft. Schl., Ad.

6, Adic. May 30, 6h P.M. *A.* 17·882; 38 8; 67. Banóg 22 841; 70 0; 48. — 135 ft.

No. 80. △ BÁGDOÁR, 30° 22′; 79° 50′, in Kămáon, right bank of the Góri.

Loc. 1) *Pasture ground* . . . . . 7,518 ft. Schl., Rob.

1, Adic. 1855, May 30, 5h 45m A.M. *A.* 22·686; 54·7. Símla 23·067; 59·4.

„ 2) *Lower end of first snow bridge above* △ *Bágdoár*. 8,130 ft. Schl., Rob.

4, Adic. 1855, May 30, 7h A.M. *A.* 22·176; 45·0. Símla 23 060; 60·3.

„ 3) *Lower end of second snow bridge above* △ *Bágdoár* 8,642 ft. Schl., Rob.

4, Adic. 1855, May 30, 10h A.M. *A.* 21·835; 49·6. Símla 23·139; 63·0 = 8,661 ft. Mássúri 23·496; 65·5 = 8,622 ft.

Loc. 4) *Spring "Lilumgánga páni"* . . . . . 7,559 ft. Schl., Rob.

= 41 ft. above △ Bágdoár; by aneroid.

„ 5) *Level of the Góri, 3 miles below* △ *Bágdoár*. . . . 7,145 ft. Schl., Rob.

= 373 ft. below △ Bágdoár; by aneroid.

No. 81. LÁTU PEAK, 30° 29′; 79° 50′, in Kămáon, forming a part of the Nánda Dévi group, the highest elevation of Kămáon . . . . . 24,400 ft. Strach.

In the Chíner panorama, it appears as a secondary prominence of the powerful massif of the Nánda Dévi. Schl., Ad.

No. 82. SHEM DÉO, 29° 37′; 79° 49′, in Kămáon, S. of the Bínser mountain.

Loc. *Temple* . . . . . 7,037 ft. Webb.

„ *ditto* . . . . . 6,760 „ I. A. 66.

No. 83. △ DVÁLI, 30° 11′; 79° 49′, in Kămáon, on the right bank of the Káfini, in its upper part.

Loc. 1) *Level of the Káfini* . . . . . 8,674 ft. Schl., Ad.

6, Adie. May 29, 9h A.M. *A.* 22·028; 63·3; 10. Banóg 22·926; 67·1; 18.

„ 2) *Conflux of the Píndari and Káfini below* △ *Dváli* ab. 8,200 ft. Strach.

No. 84. NÁNDA DÉVI PEAK, 30° 29′·9; 79° 48′·7 P, in Kămáon, the highest peak of this province, S.W. of Mílum, the principal place of northern Kămáon.

Loc. *Top of the peak* . . . . . 25,749 ft. Herb. and Hodgs.

„ *ditto* . . . . . 25,741 „ Webb.

This is the same peak which has been usually called Jawahir; but Jawahir, properly Johár, is the name of the district in which the peak is situated.

Nánda Dévi forms a prominent massif, to be seen from many parts of the Himálaya and Tíbet.

Captain Webb, who also had occasion to measure this peak, gives to it the designation "No. XIV."; Herbert and Hodgson name it "A. No. 2."

The geographical co-ordinates determined by these observers are:

Webb	30°	21′	52″	Lat. N.;	79°	48′	40″	Long. E. Gr.
Hodgson	30	22	19	„ „	79	57	22	„ „

It is the central and most prominent object of the Chíner panorama. Schl., Ad.

No. 85. TRAILL'S, or NÁNDA KHAT PASS, 30° 13′; 79° 48′, in Kămáon, leading from the Píndari to the Górí valley.

Loc. 1) *Top of the pass* . . . . . 17,770 ft. Schl., Ad.

6, Adie. May 31, 9h A.M. *A.* 15·776; 32·0; 40. Banóg 22 945; 65 5; 69.

„ 2) *Secondary depression of Traill's pass* . . . . . 17,678 ft. Schl., Ad.

6, Adie. May 31, 11h 30m A.M. *A.* 15 870; 33·4; 32. Banóg 22·904; 74 8; 15.

No. 86. MÁLARI, 30° 44′; 79° 48′, in Gărhvál, on the left bank of the Dáuli, in its upper course . . . . . 10,290 ft. I. A. 66.

No. 87. PÉTNA, 29° 19′; 79° 45′, in Kămáon, a village S.E. of Loharkót, and S.W. of Déo Dhúra, or Di . . . . . 6,633 ft. I. A. 66.

No. 88. SÁIM DÉO, 29° 42′; 79° 45′, in Kămáon, S.S.E. of the Bínser mountain.

Loc. *Temple* . . . . . 6,186 ft. I. A. 66.

No. 89. BÁGESER, 29° 47′; 79° 45′, in Kămáon, a large village, 30 miles N.N.E. of Almóra.

Loc. 1) *Dak bángalo* . . . . . 2,730 ft. Schl., Rob.

4, Adie. 1855, May 22, 10h A.M. *A.* 26·965; 83·1; 40. Símla 23·205; 74·3; 38. + 43 ft.

„ 2) *Level of the Sárju at Bágeser* . . . . . 2,714 ft. Schl., Rob.

= 16 ft. below the dāk bángalo; directly measured.

„ 3) *Palári Sína pass, between Tákula and Bágeser* . 5,594 „ Schl., Rob.

= 2,864 ft. above Bágeser; by aneroid.

„ 4) *Bilkét pass, N. of Bágeser* . . . . . 6,510 ft. Schl., Rob.

4, Adie. 1855, May 22, 4h P.M. *A.* 23·804; 82·0. Banóg 22·945; 70·3. + 20 ft.

„ 5) *Palcáti pass, N. of Bágeser* . . . . . 4,150 ft. Schl., Rob.

= 2,360 ft. below the Bilkét pass; by aneroid.

No. 90. NAKÓRI, 29° 58′; 79° 45′, in Kămáon, on an affluent of the Sárju.

Loc. 1) *Mean height of the village* . . . . . 4,310 ft. Schl., Rob.

4, Adie. 1855, May 23, 6h 30m A.M. *A.* 25·497; 68·0; 36. Símla 23·162; 64 4; 57. — 27 ft.

„ 2) *Toremkér pass* . . . . . 6,684 ft. Schl., Rob.

4, Adie. 1855, May 23, 9h A.M. *A.* 23 678; 71·2. Banóg 22·967; 65·7.

No. 91. PÁNKIA, 30° 46′; 79° 45′, in Gărhvál, a village near the right bank of the Dáuli, in its upper course . . . . . 10,673 ft. I. A. 66.

No. 92. GAMSÁLI, 30° 47′; 79° 45′, in Gărhvál, a village on the right bank of the Daúli, in its upper course . . . . . 10,317 ft. I. A. 67.

No. 93. SÚRING, 30° 3′; 79° 47′, in Kămáon, right bank of the Sárju, above the river.

Loc. *Ordinary encamping ground* . . . . . 5,707 ft. Schl., Ad.

6, Adie. May 25, 4h P.M. *A.* 24·457; 78·3; 44. Banóg 22·903; 75·0; 34. + 57 ft.

No. 94. KÁTHI, 30° 7′; 79° 47′, in Kămáon, on the left bank of the Káfini.

Loc. 1) *Mean height of the village* . . . . . 7,410 ft. Schl., Ad.

6, Adie. May 27, 11h A.M. *A.* 23·044; 72 0; 21. Banóg 22·933; 75·3; 40.

Káthi is the highest village in the Píndari valley, just at the limit of cultivation of wheat.

Loc. 2) *Dákri pass, between Súring and Káthi* . . . . . 9,655 ft. Schl., Ad. 6, Adie. May 26, 9h 30m A.M. *A.* 21·295; 64·0; 18. Banóg 22·942; 69·7; 42.

„ 3) *Spring on the northern slopes of the Dákri pass* . 7,764 ft. Schl., Ad. 6, Adie. May 26, 7h 45m A.M. *A.* 22 752; 66·7; 22. Banóg 22·926; 64·9; 48.

Nos. 95-7. MÍLUM DARVÁZA PEAKS, in Kămáon, N.W. of Mílum, the principal village of Johár.

No. 95. MÍLUM DARVÁZA WEST PEAK, 30° 44′; 79° 44′. 22,500 ft. Strach.

No. 96. MÍLUM DARVÁZA CENTRAL PEAK, 30° 44′; 79° 46′. 23,200 ft. Strach.

No. 97. MÍLUM DARVÁZA EAST PEAK, 30° 44′; 79° 47′. 23,400 ft. Strach.

These peaks are situated to the north of the ridges which are visible from the Chíner panorama. Schl., Ad.

Nos. 98-9. TRISSÚL PEAKS, in Kămáon, S.S.W. of the Nánda Dévi massif.

No. 98. TRISSÚL EAST PEAK, 30° 22′·8; 79° 43′·2 ⊢. 22,385 ft. Webb.

Webb, who marks this peak XIII., gives Lat. N. 30° 15′ 36″; Long. E. Gr. 79° 42′ 49″.

No. 99. TRISSÚL WEST PEAK, 30° 25′·7; 79° 37′·7 ⊢. 23,531 ft. Herb. and Hodgs

„ „ . . . . . 23,335 „ Webb.

This peak is marked by Herbert and Hodgson "A. No. 1", by Webb "No. XII."

Lat. N. 30° 18′ 30″; Long. E. Gr. 79° 45′ 54″ Herb. and Hodgs.
„ 30 17 59; „ 79 37 7 Webb.

The peaks of the Trissúl group are seen in the Chíner panorama connected by a broad longitudinal ridge. Schl., Ad.

No. 100. DŌL, 29° 29′; 79° 43′, in Kămáon, about 18 miles S.E. of Almóra.

Loc. *Dāk búngalo* . . . . . ab. 6,100 ft. Strach.

No. 101. BÍNSER MOUNTAIN, 29° 41′; 79° 43′, in Kămáon, N.E. of Almóra.

Loc. *Top of the mountain* . . . . . 7,984 ft. Webb.

„ *ditto* . . . . . 7,969 „ I. A. 66.

No. 102. BIRÓND MOUNTAIN, 29° 15′·1; 79° 42′·0 ⊥, in Kămáon, W.N.W. of Tímli.

Loc. *Top of the mountain* . . . . . 6,971 ft. G. T. S.

No. 103. TÁKULA, 29° 43′; 79° 41′, in Kămáon, about 8 miles E. of Havalbágh.

Loc. *Hindu temple* . . . . . 4,853 ft. Schl., Ad.

6, Adie. 1855, May 23, 11h A.M. *A.* 25·241; 86 0; 25. Banóg 22·969; 74·3; 40. + 54 ft.

No. 104. KABKÓT, 29° 56′; 79° 41′, in Kămáon, near the right bank of the Sárju, above the river.

Loc. *Mean height of the village* . . . . . 3,854 ft. Schl., Ad.

6, Adie. 1855, May 21, 1h P.M. *A.* 26 134; 91 8; 16. Banóg 22·955; 76·9; 33. + 114 ft.

No. 105. BAISÁNI, 29° 58′; 79° 41′, in Kămáon, S. of the Píndari.

Loc. *Undefined* . . . . . 4,283 ft. I. A. 66.

No. 106. BANDÁNI MOUNTAIN, 29° 33′; 79° 40′, in Kămáon, about 4 miles S.E. of Almóra . . . . . 6,797 ft. Webb.

No. 107. SÍTOLI, 29° 36′; 79° 39′, in Kămáon, 2 miles N.W. of Almóra.

Loc. 1) *Fort* . . . . . 5,259 ft. Webb.

„ 2) *Mount Browne* . . . . . 5,777 „ Webb.

No. 108. KÁLLAGA, 29° 6′; 79° 38′, in Kămáon, in the Bhábar Tarái, E.N.E. of Sákatpur . . . . . 877 ft. I. A. 67.

No. 109. MOTHESÁR MOUNTAIN, 29° 28′; 79° 38′, in Kămáon, S. of Almóra.

Loc. *Top of the mountain* . . . . . 7,783 ft. Webb.

No. 110. KALINÁTH, 29° 38′; 79° 38′, in Kămáon, 2 miles E. of Havalbágh.

Loc. *Temple* . . . . . 6,301 ft. I. A. 66.

No. 111. LIMEHÚLA, 29° 59′; 79° 38′, in Kamáon, 4 miles S. of the Píndari.

Loc. *Mean height of the village* . . . . . 5,003 ft. I. A. 66.

No. 112. ALMÓRA, 29° 35′·2; 79° 37′·9 ☥, in Kămáon, 30 miles N.N.E. of Naínitál.

Loc. 1) *Capt. Powy's bángalo* . . . . . 5,546 ft. Schl., Rob.

4, Adie. 1855, May 20, 9h 30m A.M. *A.* 24 465; 82·0. Simla 23 220; 73·8.

„ 2) *Top of the hill near Capt. Powy's bángalo* . . . . . 5,568 ft. Schl., Rob.

— 22 ft. above the bángalo; by aneroid.

Loc. 3) *Fort at Almóra* . . . . . 5,424 ft. Webb.

„ 4) *Fort Moira, South side of Almóra* . . . . . 5,607 „ Webb.

„ 5) *St. Mark's Tower, North side of Almóra* . . . . . 5,491 „ Webb.

„ 6) *Khazánchi's house, near St. Mark's Tower* . . . . . 5,438 „ Strach.

„ 7) *Deóli pass; 3 miles S. of Almóra* . . . . . 4,750 „ Schl., Rob.

= 796 ft. below Captain Powy's bángalo; by aneroid.

„ 8) *Dánna Nólla peak, between Almóra and Tákula* . 6,010 „ Schl., Rob.

= 464 ft. above Capt. Powy's bángalo at Almóra; by aneroid.

No. 113. PIÚRA, 29° 31′; 79° 37′, in Kămáon, 9 miles S. of Almóra.

Loc. 1) *Dāk bángalo* . . . . . 5,739 ft. Schl., Ad.

6, Adie. 1855, May 21, 5h A.M. *A.* 24·402; 65 1; 24. Banóg 22 933; 65 2; 47. — 51 ft

„ 2) *Nátva Khan village, E. of the Almóra road* . . . 6,382 ft. Schl., Ad.

= 643 ft. above the dāk bángalo at Piúra; by aneroid.

Near the environs of this village are the sites of large, old iron works.

Loc. 3) *Suspension bridge over the Sval* . . . . . 3,730 ft. Schl., Ad.

= 2,009 ft. below the dak bángalo at Piúra; by aneroid.

„ 4) *Level of the Sval at suspension bridge* . . . . . 3,682 „ Schl., Ad.

No. 114. HAVALBÁGH, 29° 38′; 79° 37′, in Kămáon, a tea-plantation, 8 miles N. of Almóra.

Loc. 1) *Superintendent's house* . . . . . 4,114 ft. Schl., Ad.

6, Adie. 1855, May 22, 1h 30m P.M. *A.* 25·914; 90·7; 16. Banóg 22 969; 74 7; 36. | 105 ft.

„ 2) *Undefined* . . . . . 3,986 „ Webb.

No. 115. NÍTI GHĂT, or CHÍNDU PASS, 31° 0′; 79° 37′, in Gărhwál, one of the easiest passes leading over to Gnári Khórsum.

Loc. 1) *Top of the pass* . . . . . 16,814 ft. Strach.

„ 2) △ *Kiónlang, a grass plain on the southern slopes of the pass* . . . . . 14,544 „ I. A. 65.

In the Chíner panorama the top of the pass is not visible. Its position is parallactically altered, owing to its far greater remoteness in comparison with the other peaks seen in the same direction. Schl., Ad.

No. 116. ALRAKAKHÁN MOUNTAIN, 29° 25′; 79° 36′, in Kămáon, S.E. of the Ghúgar fort.

Loc. 1) *Top of the mountain* . . . . . 7,366 ft. I. A. 66.

„ 2) *Level of a small lake* . . . . . 6,196. „ I. A. 66.

No. 117. CHAUKÚNDA, 29° 26′; 79° 36′, in Kămáon, a village S. of Lohārkót and N.E. of Alrakakhán . . . . . 6,645 ft. I. A. 66.

No. 118. KATARMÁL, 29° 37′; 79° 35′, in Kămáon, about 6 miles W. of Almóra.

Loc. *Stockade* . . . . . 5,216 ft. Webb.

No. 119. GANANÁTH, 29° 46′; 79° 35′, in Kămáon, E. of the Thúi Déo mountain.

Loc. *Fort* . . . . . 6,811 ft. Webb.

„ *ditto* . . . . . 6,842 „ I. A. 66.

No. 120. BIJNÁTH, 29° 55′; 79° 35′, in Kămáon, on the left bank of the Gaumáti.

Loc. *Temple* . . . . . 3,545 ft. I. A. 66.

No. 121. BÁNCHU, 29° 56′; 79° 35′, in Kămáon, N. of the Bijnáth temple.

Loc. *Fort* . . . . . 4,083 ft. I. A. 66.

No. 122. THÚI DÉO MOUNTAIN, 29° 45′; 79° 34′, in Kămáon, about 24 miles N. of Almóra . . . . . 7,102 ft. Webb.

No. 123. NANDÁKNA PEAK, 30° 27′·6; 79° 34′·0, in Kămáon, near the Trissúl peaks.

Loc. *Top of the peak* . . . . . 20,758 ft. Webb.

Webb, who marks this peak XI., gives Lat. N. 30° 20′ 6″; Long. E. Gr. 79° 33′ 40″. In the Chíner panorama it is the first broad peak to the left of the Trissúl group. Schl., Ad.

No. 124. NÍTI, 30° 48′; 79° 34′, in Gărhwál, on the Dáuli.

Loc. *Mean height of the village* . . . . . 11,464 ft. I. A. 65.

„ *ditto* . . . . . 11,600 „ Strach.

No. 125. LOHĀRKÓT, 29° 28′; 79° 33′, in Kămáon, about 15 miles N.E. of Nainitál.

Loc. *Fort* . . . . . 6,804 ft. Webb.

No. 126. RAMGÁRH, 29° 27′; 79° 32′, in Kămáon, 15 miles N. of Nainitál.

Loc. 1) *Dak bángalo* . . . . . 6,060 ft. Schl., Ad.

6, Adie. 1855, May 20, 1h P.M. *A.* 24·134; 82·6; 10. Banóg 22·956; 70·4; 37. — 42 ft.

The village of Rămgárh itself is situated much lower.

Loc. 2) *First pass between Nainitál and Ramgárh* . . . . . 7,142 ft. Schl., Rob.

= 622 ft. above the level of the Nainitál lake; by aneroid.

No. 127. PINÁTH, 29° 50′; 79° 32′, in Kămáon, about 15 miles W. of Bágeser.

Loc. *Temple* . . . . . 7,699 ft. Webb.

„ *ditto* . . . . . 7,111 „ I. A. 66.

No. 128. MALUAKHÉL, 29° 19′; 79° 31′, in Kămáon, on a small lake.

Loc. *Level of the lake* . . . . . 3,664 ft. I. A. 67.

No. 129. GANGANKÓT, 29° 33′; 79° 31′, in Kămáon, S.W. of Almóra.

Loc. *Level of the Kosílla* . . . . . 3,227 ft. I. A. 66.

No. 130. THÚNGSI, 30° 29′; 79° 31′, in Gărhwál, S. of Jhósimath, and E.N.E. of Pánkimath . . . . . 8,080 ft. I. A. 66.

No. 131. NAINÍTÁL, 29° 23′·6; 79° 30′·9 ⚐ (referred to the Church), in Kămáon, a sanitarium in the outer ranges of the Himálaya.

Loc. 1) *Cistern of the barometer at Dorrett's Hótel* . . . . . 6,565 ft. Schl., Rob.

1855	Hour.	Nainitál.	Banóg.	Height.
	h			
April 17	8 A.M.	23·737; 54·9; 60	22·865; 54·9; 63	6,517
„ 17	2 P.M.	23·729; 58·3; 52	22·880; 59 0; 47	6,537
„ 17	4 „	23·693; 55·4; 80	22·849; 52 5; 58	6,551
„ 18	7 A.M.	23 705; 44·4; 91	22 857; 45·5; 66	6,566
„ 18	8 „	23·693; 47·3; 83	22 869; 46 9; 70	6,589
„ 18	10 „	23·729; 57·7; 59	22·914; 55 1; 61	6,582
„ 23	9 „	23·745; 51·4; 87	22·932; 53·8; 63	6,593
„ 24	10 „	23·768; 59·5; 76	22·960; 61·3; 53	6,584

Loc. 2) *Level of the Nainitál lake* . . . . . 6,520 ft. Schl., Rob.
= 45 ft. below the barometer cistern; trigonometrically measured.

„ 3) *Cistern of the barometer at Dr. Francis' bángalo* . . . 6,634 ft. Schl., Rob.
= 114 ft. above the level of the lake; trigonometrically measured.

„ 4) *Lária Kánta peak* . . . . . 8,342 ft. Schl., Rob.
6, Adie. 1855, May 8, 9h A.M. *A.* 22·331; 65·5; 29. Nainitál 23·768; 73·9; 25.

„ 5) *Source of the rivulet flowing into the Nainitál lake* 6,571 ft. Schl., Ad.
= 51 ft. above the level of the lake; by aneroid.

„ 6) *Entrance to St. Thomas' Church* . . . . . 6,898 ft. Schl., Ad.
= 264 ft. above Dr. Francis' bángalo; by aneroid.

„ 7) *St. Loo, house of the Commissioner, Mr. H. Batten* . 7,334 ft. Schl., Ad.
2, Pistor. 1855, April 18, 12h 40m P.M. *A.* 23·087; 59·4. Nainitál hôtel 23·733; 60·3 = 7,374 ft.
6, Adie. „ „ 30, 9h 0m A.M. „ 23 189; 68·5. Francis' bángalo 23·733; 71·7 = 7,294 „

„ 8) *Spring N.E. of St. Loo* . . . . . 7,205 ft. Schl., Ad.
= 129 ft. below St. Loo; by aneroid.

„ 9) *Ayar Páttah peak, N.W. of the lake* . . . . . 7,872 ft. Schl., Ad.
2, Pistor. 1855, April 26, 9h 40m A.M. *A.* 22 698; 64·6. Nainitál hôtel 23·772; 69·1.

— — —

No. 132. Bimtál, 29° 19′; 79° 30′, in Kámáon, S. of Nainitál.
Loc. *Level of the lake* . . . . . 4,343 ft. Webb.

— — —

No. 133. Ghágar Pass, 29° 24′; 79° 30′, in Kámáon, S. of Lohárkót.
Loc. *Top of the pass* . . . . . 7,768 ft. Webb.

— — —

No. 134. Reóni, 29° 40′; 79° 30′, in Kámáon, about 20 miles N.W. of Almóra.
Loc. *Temple* . . . . . 6,579 ft. Webb.
„ *ditto* . . . . . 6,490 „ I. A. 66.

— — —

No. 135. Badángárh, 30° 0′; 79° 30′, in Kámáon, S. of the Píndari.
Loc. *Fort* . . . . . 8,242 ft. I. A. 66.

— — —

No. 136. Bhatkót Mountain, 29° 51′; 79° 29′, in Kámáon, N.E. of Dúna Gíri, and S.W. of Pináth . . . . . 9,133 ft. Webb.

— — —

No. 137. PILKÚNTA MOUNTAIN, 30° 27′; 79° 29′, in Gărhvál, S. of Jhósimath. and E. of Pánkimath . . . . . 12,620 ft. I. A. 66.

No. 138. JHÓSIMATH, 30° 34′; 79° 29′, in Gărhvál, near the confluence of the Alaknánda and Vishnugánga.

Loc. 1) *Dák bángalo* . . . . . 6,089 ft. Schl., Rob.

2, Pistor. 1855, Sept. 10, 9h A.M. Loc. corr. + 5 ft.

A. 24·008; 70·2; 83. Mássúri 23·591; 64·8; 92 = 6,094 ft. Símla 23 185; 61 7; 90 = 6,073 ft.

Loc. 2) *Undefined* . . . . . 6,185 ft. Webb.

„ 3) *Temple at Vishnupreág* . . . . . 4,724 „ Schl., Rob.

2, Pistor. 1855, Sept. 8, 2h 30m P.M.

A. 25·166; 67·3; 85. Mássúri 23·556; 66·6; 90. + 19 = 4,725 ft. Símla 23·166; 65·8, 88. + 23 = 4,723 ft.

Loc. 4) *Level of the confluence of the Alaknánda and the Dáuli at Vishnupreág* . . . . . 4,520 ft. Schl., Rob.

= 204 ft. below the temple at Vishnupreág; by aneroid.

No. 139. MÁNA, 30° 47′·0; 79° 20′·8 E, in Gărhvál, N.E. of Bádrinath.

Loc. 1) *Pavement in the village* . . . . . 10,308 ft. Schl., Rob.

2, Pistor. 1855, August 30. Loc. corr. — 56 ft.

9h A.M. *A.* 20·576; 55·8; 44. Símla 23·158; 62 4; 97 = 10,304 ft.

11h „ „ 20·568; 64·0; 72. „ 23·123; 64·0; 96 = 10,312 „

„ 2) *Undefined* . . . . . 10,492 ft. Webb.

No. 140. CHÍNER PEAK, 29° 24′·3; 79° 28′·9 ☿, in Kămáon, N.W. of the lake at Nainitál.

Loc. 1) *Top of the peak.* . . . . . 8,737 ft. Schl., Rob.

„ *ditto* . . . . . 8,732 „ G. T. S.

6, Adie. 1855. Loc. corr. — 18 ft.

April 28, 10h A.M. *A.* 22·048; 63·7; 30. Francis' bángalo 23·772; 71 3; 29 = 8,753 ft.

„ 28, 11h „ „ 22·064; 63·5; 40. „ „ 23·776; 71·6; 28 = 8,738 „

„ 29, 10h „ „ 22·064; 61·5; 25. „ „ 23 768; 71 3; 27 = 8,720 „

A large panorama was drawn from this peak by Adolphe. See panoramic profiles.

Loc. 2) *Eastern Chíner pass, between Chíner peak and Úlma kánta* . . . . . 7,871 ft. Schl., Rob.

= 866 ft. below the Chíner peak; by aneroid.

„ 3) *Western Chíner pass, between Déo Pátta and Chíner peak.* . . . . . 7,730 ft. Schl., Rob.

= 1,007 ft. below the Chíner peak; by aneroid.

No. 141. SILÓTHI, 29° 18′; 79° 27′, in Kămáon, a village N. of Haldváni, and E. of Kaladúngi . . . . . 4,281 ft. I. A. 67.

No. 142. SIÁHI, 29° 34′; 79° 27′, in Kămáon, about 12 miles W. of Almóra.

Loc. *Top of the tree near the temple* . . . . . 7,265 ft. Webb.

No. 143. DÚNA GÍRI, 29° 47′; 79° 27′, in Kămáon, between Naithána and Reóni.

Loc. *Temple* . . . . . 7,344 ft. Webb.

No. 144. PÁNA, 30° 24′; 79° 27′, in Gărhwál, E. of the Alaknánda.

Loc. *Undefined* . . . . . 8,471 ft. I. A. 66.

No. 145. BÚJAN, 29° 31′; 79° 26′, in Kămáon, on the right bank of the Kosílla.

Loc. *Level of the Kosílla* . . . . . 2,938 ft. I. A. 66.

No. 146. DHVÁRA HATH, 29° 48′; 79° 26′, in Kămáon, a village E. of the Ramgánga, and 2 miles S.W. of Dúna Gíri . . . . . 4,995 ft. I. A. 66.

No. 147. HÍLLUNG, 30° 31′; 79° 26′, in Gărhwál, left bank of the Alaknánda.

Loc. 1) *Mean height of the bazár* . . . . . 5,291 ft. Schl., Rob.

2, Pistor. 1855, Sept. 10, 1^{h} P.M.

A. 24·682; 79 5; 50. Mässúri 23·579; 66 6; 93. + 13 = 5,295 ft. Símla 23 185; 64·9; 90. + 18 − 5,287 ft.

Loc. 2) *Upper limit of "Dóllu", near Hillung.* . . . . . 5,056 ft. Schl., Rob.

2, Pistor. 1855, Sept. 10, 1^{h} 25^{m} P.M. *B* = Mässúri; *C* = Símla; *D* = Hillung.

A. 24·878; 80 6; 49. *B.* 23·572; 66 5; 93. + 15 = 5,054 ft. *C.* 23 189; 65·1; 89. + 20 = 5,054 ft.

D. 24·682; 80·0; 48 = 5,061 ft.

No. 148. △ LÁNGSI KHĀT, 30° 59′; 79° 26′, in Gărhwál, near the village Lángsi, left bank of the Alaknánda.

Loc. *Encamping ground* . . . . . 4,571 ft. Schl., Rob.

„ *ditto* . . . . . 4,518 „ I. A. 66.

2, Pistor. 1855, Sept. 11, 8^{h} A.M. *A.* 25·308; 68·4; 85. Símla 23 197; 60·1; 91. — 24 ft.

No. 149. SÁKATPUR, 29° 4′; 79° 25′, in Kămáon, in the Bhábar Tarái, at the southern foot of the Himálaya . . . . . 908 ft. P. C. Vanrenen.

No. 150. BÁRUI CHÁRA, 30° 37′; 79° 24′, in Gărhvál, a village on the right bank of the Vishnugánga . . . . . 5,287 ft. I. A. 66.

No. 151. KHĀT, 30° 38′; 79° 24′, in Gărhvál, right bank of the Vishnugánga, below Pandukéser . . . . . 5,449 ft. Schl., Rob.

2, Pistor. 1855, Sept. 8, 11h A.M.

A. 24·540; 74·1; 69. Măssúri 23·583; 66·6; 92 = 5,457 ft. Símla 23·181; 63·3; 90 = 5,440 ft.

No. 152. HALDVÁNI, 29° 13′; 79° 23′, in Kămáon, a village in the Bhábar Tarái, at the southern foot of the Himálaya . . . . . 1,497 ft. P. C. Vanrenen.

No. 153. PIPELKÓT, 30° 26′; 79° 23′, in Gărhvál, left bank of the Alaknánda.

Loc. 1) *Open place in the village* . . . . . 4,295 ft. Schl., Rob

2, Pistor. 1855, Sept. 11, 1h P.M.

A. 25·571; 75·9; 67. Măssúri 23·583; 66·7; 91. + 23 = 4,286 ft. Símla 23·205; 64·9; 88. + 28 = 4,301 ft.

Loc. 2) *Upper limit of the date-palm* . . . . . 3,955 ft. Schl., Rob.

2, Pistor. 1855, Sept. 11, 3h P.M.

A. 25·863; 77·7; 66. Pipelkót 25·565; 76·5; 50 = 3,961 ft. Símla 23 189; 65 7; 90. + 31 = 3,949 ft.

No. 154. PANDUKÉSER, 30° 40′; 79° 23′, in Gărhvál, left bank of the Vishnugánga, below Bádrinath.

Loc. 1) *Dharamsála* . . . . . 6,113 ft. Schl, Rob

2, Pistor. 1855, Sept. 8, 7h A.M. *A.* 23 945; 63 3; 84. Símla 23·150, 59·9; 94.

„ 2) *Undefined* . . . . . 5,238 ft. I. A. 66.

„ 3) *Upper limit of the cultivation of Móddua, or Góda* 6,737 „ Schl., Rob.

2, Pistor. 1855, Sept. 7, 3h P.M.

A. 23 434; 65·8; 83. Măssúri 23·564; 66·2; 89 = 6,746 ft. Símla 23 162; 65·5; 89 = 6,728 ft.

No. 155. KĂLIANKÓTI, 30° 43′; 79° 23′, in Gărhvál, on the left bank of the Vishnugánga, S.E. of Bádrinath . . . . . 8,271 ft. Schl., Rob.

2, Pistor. 1855, Sept. 7, 1h P.M.

A. 22·186; 67·6; 52. Măssúri 23·583; 67·1; 91. — 34 = 8,283 ft. Símla 23 170; 65·5; 88. — 24 = 8,259 ft.

At Kăliankóti is the upper limit of the cultivation of "Zúa."

Loc. 2) *Upper limit of chesnut-trees* (*Pánger*) . . . . . 8,019 ft. Schl., Rob.

2, Pistor. 1855, Sept. 7, 2h P.M.

A. 22·383; 69·1; 60. Măssúri 23·564; 67·1; 90. — 29 = 8,016 ft. Símla 23 174; 65·8. — 19 = 8,021 ft.

No. 156. KÁNKRA MOUNTAIN, 30° 2′·9; 79° 22′·8, in Kămáon, 4 miles S. of the Píndari . . . . . 10,095 ft. G. T. S.

No. 157. BAMÓRI, 29° 14′; 79° 22′, in Kámáon, in the Bhábar Tarái, at the southern foot of the Himálaya.

Loc. *Dāk bángalo* . . . . . 1,763 ft. P. C. Vanrenen.

No. 158. KÚMPUR, 29° 38′; 79° 22′, in Kămáon, W.N.W. of Almóra.

Loc. *Temple* . . . . . 6,378 ft. Webb.

No. 159. JÉSAL, 30° 25′; 79° 22′, in Gărhvál, on the right bank of the Alaknánda.

Loc. *Level of the junction of the Alaknánda and Pirgánga* . 3,403 ft. Schl., Rob.

2, Pistor. 1855, Sept. 11, 4h P.M. *A.* 26·363; 76·3; 65. Pipelkót 25·558; 75 9; 60 = 3,402 ft.
Símla 23 185; 65·7; 87. + 37 − 3,404 ft.

No. 160. BÁDHAN DHÚA MOUNTAIN, 29° 29′; 79° 21′, in Kămáon, 6 miles S. of the Kósi . . . . . 8,505 ft. Webb.

No. 161. CHAUNÚN, 29° 36′; 79° 21′, in Kămáon, 4 miles N. of the Kósi.

Loc. *Temple* . . . . . 6,428 ft. Webb.

No. 162. ÍBI GĂMIN PEAK, 30° 51′; 79° 21′, in Gărhvál-Gnári Khórsum, a high peak in the chain where the Mána and Níti pass are situated.

Loc. 1) *Top of the peak* . . . . . 25,550 ft. Strach.

This peak, as well as the Íbi Gămin pass, is very well visible in the Chíner panorama. Schl., Ad.

Loc. 2) *Highest point reached by us on its flanks* . . . . . 22,259 ft. Schl., Ad. and Rob.

6, Adie. 1855, Aug. 19, 2h P.M. Loc. corr. + 72 ft.
A. 13 364; 33 1; 88. Símla 23·201; 68·0; 92 = 22,216 ft. Mássúri 23·568; 66·6; 92 = 22,158 ft.
This is the greatest height hitherto attained on any mountain.

Loc. 3) *Camp in the upper part of the main Ibi Gămin glacier, at the foot of the Íbi Gămin peak* . . . . . 19,326 ft. Schl., Ad. and Rob.

6, Adie. 1855, Aug. 18, 5h 30m P.M. *A.* 14 790; 37 2; 9. Mássúri 23 535; 64·2; 92.
This was the greatest height at which we slept.

No. 163. △ GHÁSTOLI, 30° 56′; 79° 21′, in Gărhvál, on the left bank of the Sársútti, 8 miles N. of Bádrinath.

Loc. 1) *Level of the Sársútti* . . . . . 13,119 ft. Schl., Ad.

6, Adie. 1855, Aug. 24, 2h P.M. *A.* 18·572; 53·6; 43. Símla 23·135; 62·2; 96. — 61 ft.

Loc. 2) *Pasture ground* . . . . . 13,286 ft. I. A. 65.

„ 3) *Upper limit of shrubs, on the eastern slopes of the Sărsútti valley* . . . . . 13,550 „ Schl., Rob.

6, Adie. 1855, Aug. 24, 10h A.M. *A.* 18·268; 49·3; 26. Símla 23·083; 63 1; 96.

No. 164. PETÓLIA, 30° 24′; 79° 20′, in Gărhvál, on the left bank of the Alaknánda, near Keterbál.

Loc. *Level of the Alaknánda* . . . . . 3,234 ft. Schl., Rob.

2, Pistor. 1855, Sept. 13, 9h A.M. *A.* 26 567; 69 8; 89. Símla 23 233; 61·2; 94. Loc. corr. — 15 ft.

No. 165. BÁDRINATH, 30° 46′; 79° 20′, in Gărhvál, right bank of the Vishnugánga.

Loc. 1) *Entrance to the Hindu temple* . . . . . 10,124 ft. Schl., Rob.

„ *ditto* . . . . . 10,294 „ I. A. 66.

2, Pistor. 1855. 9h A.M. *B* = Măssúri; *C* = Símla.

Aug. 25. *A.* 20 760; 61 2; 79. *B.* 23 544; 62 8; 92. = 10,132 ft. *C.* 23 116; 62·2; 96. = 10,118 ft.
Sept. 7. „ 20·768; 62·2; 68. „ 23·154; 62·8; 92. = 10,121 „

Loc. 2) *Upper limit of the "Anúsh and Kúsi," fir-trees* . . . 9,572 ft. Schl., Rob.

2, Pistor. 1855, Sept. 7, 10h 30m A.M.

A. 21·189; 62 2; 64. Măssúri 23·597; 66 0; 94. — 30 = 9,603 ft. Símla 23 162; 64 0; 91. — 25 = 9,541 ft.

Loc. 3) *Upper limit of the "Bílka and Deodár," fir-trees* . . 9,348 ft. Schl., Rob.

2, Pistor. 1855, Sept. 7, 10h A.M.

A. 21·382; 63 0; 67. Măssúri 23 599; 65 5; 93 = 9,378 ft. Símla 23·166; 64·0; 91 = 9,318 ft.

Loc. 4) *Upper limit of wallnuts* (*Agróts*) . . . . . 8,376 ft. Schl., Rob.

2, Pistor. 1855, Sept. 7, 11h 30m A.M.

A. 22·115; 65·5; 64. Măssúri 23 595; 66·7; 93. — 18 = 8,400 ft. Símla 23·166; 64 6; 88. — 13 = 8,351 ft.

No. 166. BALKÓT, 29° 53′; 79° 19′, in Kămáon, on the left bank of the Ramgánga.

Loc. *Level of the Ramgánga* . . . . . 3,339 ft. I. A. 66.

No. 167. ZAMÓLI, 30° 24′; 79° 19′, in Gărhvál, on the left bank of the Alaknánda.

Loc. *Level of the junction of the Balsútti and Alaknánda* . . 3,137 ft. Schl., Rob

2, Pistor. 1855, Sept. 13, 9h A.M.

A. 26·666; 72·5; 85. Măssúri 23 626; 64·0; 92 = 3,134 ft. Símla 23·241; 62·6; 91 = 3,139 ft.

No. 168. PÁNKIMATH, 30° 28′; 79° 19′, in Gărhvál, a village near the left bank of the Alaknánda . . . . . 4,703 ft. I. A. 66.

No. 169. SAUNCHÁLIA MOUNTAIN, 29° 30′·3; 79° 18′·2 ♁, in Kămáon, 3 miles S. of the Kosílla . . . . . 8,526 ft. G. T. S.

No. 170. NAITHÁNA, 29° 48′; 79° 18′, in Kămáon, 3 miles E. of the Ramgánga.

Loc. *Fort* . . . . . 5,857 ft. Webb.

„ *ditto* . . . . . 5,837 „ I. A. 66.

No. 171. LŌBAGÁRH, 29° 58′; 79° 18′, in Kămáon, on an affluent of the Ramgánga.

Loc. *Fort* . . . . . 6,430 ft. Webb.

„ *ditto* . . . . . 6,461 „ I. A. 66

No. 172. ÍBI GÁMIN PASS, 30° 55′; 79° 18′, in Gărhvál-Gnári Khórsum, N.W. of the Íbi Gámin peak, in the same chain where the Niti and Mána pass are situated.

Loc. 1) *Top of the pass* . . . . . 20,459 ft. Schl., Ad. and Rob.

6, Adie. 1855, Aug. 22, 2h 30m P.M.

A. 14 193; 31 5; 56. Símla 23 185; 64 4, 96 = 20,495 ft. Mässúri 23 518; 62·4; 94 = 20,423 ft.

This was the highest pass we had crossed. A depression of the crest, about corresponding to the position of the pass, is distinctly visible in the Chíner panorama. Schl., Ad.

Loc. 2) *Highest phanerogamic plants on the N.E. slopes of the Íbi Gámin pass* . . . . . 19,809 ft. Schl., Ad. and Rob.

— 650 ft. below the top of the pass; by aneroid.

This was the highest place where we found phanerogamic plants.

Loc. 3) *Camp on the left side of the Íbi Gámin pass glacier* 19,094 ft. Schl., Rob.

6, Adie. 1855, Aug. 21 and 22. *B* = Mässúri; *C* = Símla.

4h P.M. *A.* 14 917; 33 4; 100. *B.* 23·539; 64·2; 92 = 19,077 ft. *C.* 23·162; 64 8; 95 = 19,106 ft.

9h „ „ 14·961; 36 7; 55. „ 23 591; 64 0; 92 = 19,087 „ „ 23·224; 62·6; 97 = 19,103 „

This glacier is an affluent on the left side of the main Íbi Gámin glacier.

Loc. 4) *Confluence of the two branches of the main Sărsútti glacier* . . . . . 18,688 ft. Schl., Rob.

6, Adie. 1855, Aug. 22, 5h P.M. *A.* 15·197; 42·8; 26. Mässúri 23·548; 64·4; 91.

„ 5) *Camp on the moraine of the Sărsútti glacier, Aug. 22 and 23* . . . . . 17,757 ft. Schl., Rob.

6, Adie. 1855, Aug. 23, 10h A.M. *A.* 15·721; 42·6; 19. Símla 23·170; 64·2; 95.

No. 173. △ DHANRÁU, 30° 58′; 79° 18′, in Gărhvál, left bank of the Sărsútti, on the way from Mána to the Mána pass.

Loc. 1) *Level of the Sărsútti* . . . . . 14,674 ft. Schl., Ad.

6, Adie. 1855, Aug. 24, 7h A.M. *A.* 17·476; 39·6; 49. Símla 23 142; 60·4; 96. — 77 ft.

„ 2) △ *Sărsútti, at the lower end of the Sărsútti glacier* . 15,564 ft. Schl., Ad.

6, Adie. 1855, Sept. 24, 10h A.M.

A. 17·072; 56·5; 4. Mássúri 23·516; 65·3; 93 = 15,568 ft. Símla 23·134; 63 5; 97 = 15,559 ft.

The Sărsútti glacier stretches down from the S.W. slopes of the Ibi Gámin pass.

No. 174. NALIKÁNTA PEAK, 30° 41′·6; 79° 17′·3, in Gărhvál, S.W. of the Bádrinath.

Loc. *Top of the peak* . . . . . 21,383 ft. Webb.

Webb, who marks this peak IX., obtains:

Lat. N. 30° 42′ 4″; Long. E. Gr. 79°·15′ 16″.

This peak is visible in the Chíner panorama. Schl., Ad.

No. 175. DEVALIKHÁL PASS, 30° 7′; 79° 16′, in Gărhvál, E. of Sírpur fort.

Loc. *Mean height of the pass* . . . . . 7,145 ft. I. A. 66.

No. 176. CHAÚSLA, 29° 14′; 79° 17′, in Kămáon, a village S.E. of Kaladúngi, in the Bhábar Tarái, at the southern foot of the Himálaya . . . . . 1,362 ft. P. C. Vanrenen.

No. 177. TÁNDA, 29° 4′; 79° 16′, in Kămáon, a village in the Bhábar Tarái, at the southern foot of the Himálaya . . . . . 884 ft. P. C. Vanrenen.

No. 178. KALADÚNGI, 29° 16′; 79° 16′, in Kămáon, in the Bhábar Tarái, at the southern foot of the Himálaya.

Loc. 1) *Dák bángalo* . . . . . 1,381 ft. Schl., Rob.

2, Pistor. 1855, April 16. *B* = Ambála; *C* = Aligárh; *D* = Ágra.

7h A.M. *A.* 28 615; 67·3. *B.* 28 985; 69·6 = 1,390 ft. *C.* 29·237; 73·2 = 1,362 ft.

11h „ „ 28·634; 79 2. „ 28 985; 77 0 = 1,378 „ „ 29·272; 79·2 = 1,389 „ *D.* 29 363; 76·1 = 1,384 ft.

Loc. 2) *Nihál bridge, N.E. of Kaladúngi* . . . . . 3,220 ft. Schl., Rob.

= 1,839 ft. above Kaladúngi; by aneroid.

No. 179. BÁDRINATH PEAK (*B*♁), 30° 43′·4; 79° 15′·6, in Gărhvál, S.E. of Bádrinath, a well known Hindu temple on the right bank of the Vishnugánga 22,869 ft. G. T. S.

In the Chíner panorama this peak is not visible. Schl., Ad.

No. 180. MÁNA GHÁT, or CHIRBÍTTA DHÚRA PASS, 31° 5′; 0; 79° 15′·3 E, in Gárhvál-Gnári Khórsum, leading from Gárhvál to Gnári Khórsum.

Loc. 1) *Top of the pass* . . . . . 18,406 ft. Schl., Ad.

6, Adie. 1855, Sept. 5, 11h A.M.

A. 15 319. 37·4; 34. Mássúri 23·534; 67·8; 90 = 18,420 ft. Símla 23·150; 64·4; 95 = 18,391 ft.

Not visible in the Chíner panorama; hidden behind the Bádrinath peak. Schl., Ad.

Loc. 2) *Déo Tal, a lake on the southern slopes of the Mána pass* . . . . . 17,745 ft. Schl., Ad.

6, Adie. 1855, Sept. 5, 9h A.M.

A. 15·654; 36 1; 12. Mássúri 23 534; 63 7; 96 = 17,751 ft. Símla 23 142; 62·4; 97 = 17,739 ft.

Loc. 3) △ *Zográn, on the southern foot of the Mána pass* . . 17,034 ft. Schl., Ad.

„ *ditto* . . 17,172 „ I. A. 65.

6, Adie. 1855, Sept. 5, 7h A.M. *A.* 16·032, 31 6; 28. Símla 23 158; 59·9; 98.

„ 1) △ *Póti, on the northern foot of the Mána pass* . . . . 17,154 ft. Schl., Ad.

6, Adie. 1855, Sept. 6, 11h A.M.

A. 16 111; 46 0; 44. Mássúri 23·579; 66·9; 93 = 17,181 ft. Símla 23 162; 64·8; 95 = 17,126 ft.

Loc. 5) *Upper limit of shrubs in the Póti valley* . . . . . 17,040 ft. Schl., Ad.

111 ft. below △ Póti; by aneroid.

No. 181. MÁNDEL, 30° 28′; 79° 15′, in Garhvál, right bank of the Balsútti, an affluent of the Alaknánda.

Loc. 1) *Mean height of the village* . . . . . 4,790 ft. Schl., Rob.

2, Pistor. 1855, Sept. 14, 9h A.M. *A.* 25·170; 69·6, 92. Símla 23·241; 62 1; 93.

„ 2) *Pangerbása village, N.W. of Mándel* . . . . . 8,099 ft. Schl., Rob.

2, Pistor 1855, Sept. 14, 12h Noon.

A 22·118, 62 2, 85. Massúri 23 658; 69 3; 75. + 15 = 8,123 ft. Símla 23 237; 65 8; 90. + 10 = 8,075 ft.

No. 182. TUNGNÁTH, 30° 29′; 79° 15′, in Gárhvál, between Góbeser and Ókimath.

Loc. *Temple* . . . . . 9,989 ft. I. A. 66.

No. 183. GÓBESER, 30° 25′; 79° 14′, in Gárhvál, near the left bank of the Balsútti, an affluent of the Alaknánda.

Loc. *Hindu temple* . . . . . 4,791 ft. Schl., Rob.

2, Pistor. 1855, Sept. 13, 1h P.M.

A. 25·166, 78 8; 71 Massúri 23 630, 66 7; 87. + 18 = 4,794 ft. Símla 23 237; 65 7; 92. + 23 = 4,787 ft.

No. 184. NANDPREÁG, 30° 20′; 79° 12′, in Gărhvál, on the confluence of the Alaknánda and Nandákni.

Loc. *Level of the confluence* . . . . . 2,805 ft. I. A. 66.

No. 185. KĂRNPREÁG, 30° 16′; 79° 11′, in Gărhvál, on the confluence of the Píndari and Alaknánda.

Loc. *Level of the confluence* . . . . . 2,560 ft. I. A. 66.

No. 186. BURÁNSI MOUNTAIN, 30° 24′; 79° 11′, in Gărhvál, 3 miles E. of the Alaknánda . . . . . 8,644 ft. I. A. 66.

No. 187. TSÓBTA, 30° 27′; 79° 10′, in Gărhvál, S.W. of the Tungnáth temple.

Loc. *Dharamsála* . . . . . 8,842 ft. Schl., Rob.

2, Pistor. 1855, Sept. 15, 8^h A.M. *A.* 21 776; 55·8, 95. Símla 23·229, 61·2, 95. – 17 ft

No. 188. ÓKIMATH, 30° 30′; 79° 9′, in Gărhvál, near the left bank of the Mandágni

Loc. 1) *Floor of the large Hindu temple* . . . . . 4,285 ft. Schl., Rob

2, Pistor. 1855, Sept. 17, 9^h 15^m A.M. *B* = Mássúri; *C* = Símla.
A. 25 603, 70·0, 88. *B* 23 607; 63·5; 95 – 4,279 ft. *C.* 23·225, 62·1; 96 – 4,290 ft.

Loc. 2) *Dispensary* . . . . . 4,198 ft. Schl., Rob.

= 87 ft. below the entrance to the Hindu temple; by aneroid.

Loc. 3) *Mastúra village, E. of Ókimath* . . . . . 5,320 „ Schl., Rob.

= 1,122 ft. above the dispensary at Ókimath; by aneroid.

No. 189. KÁTHKI NÁU, 29° 36′; 79° 8′, in Kamáon, 3 miles N. of the Kósi.

Loc. *Fort* . . . . . 5,050 ft. Webb.

No. 190. DHÉKALU, 29° 29′; 79° 7′, in Kămáon, on the right bank of the Kosílla.

Loc. *Level of the Kosílla* . . . . . 1,221 ft. I. A. 66

No. 191. JÚNIA GĂRH, 29° 52′; 79° 7′, in Kămáon, N. of Gújuru Garh.

Loc. *Fort* . . . . . 6,813 ft. I. A. 66.

No. 192. NALAHPÁTAN, 30° 32′; 79° 7′, in Gărhvál, N. of Ókimath, near the confluence of the Mandágni and Madmésar.

Loc. 1) *House in the centre of the village* . . . . . 4,637 ft. Schl., Rob.

2, Pistor. 1855, Sept. 17, 12^h Noon.

A. 25 288; 79 3; 58. Mássúri 23 611; 67 1; 83. + 20 = 4,647 ft. Símla 23·217; 65·5; 93. + 24 = 4,627 ft.

Loc. 2) *Undefined* . . . . . 4,713 ft. I. A. 66.

„ 3) *Level of the confluence of the Mandágni and Káli* . . 5,552 ft. Schl., Rob.

2, Pistor. 1855, Sept. 24, 9^h 30^m A.M.

A. 24 497; 69 4; 72. Mássúri 23·618; 61·9; 90 = 5,561 ft. Símla 23 213; 60·4; 91 = 5,542 ft.

No. 193. CHÚKAM, 29° 32′; 79° 6′, in Kámáon, on the left bank of the Kosílla.

Loc. *Level of the Kosílla* . . . . . 1,793 ft. I. A. 66.

No. 194. MAIKÁNDA, 30° 34′; 79° 6′, in Gárhvál, right bank of the Mandágni, above its confluence with the Káli.

Loc. 1) *Hindu temple* . . . . . 5,486 ft. Schl., Rob.

2, Pistor. 1855, Sept. 17, 3^h P.M.

A. 24 544; 65·7. Mássúri 23·595; 66 4. + 11 = 5,488 ft. Símla 23 201; 67 8. + 16 = 5,483 ft.

Loc. 2) *Páta Fabínda dharamsála, N. of Maikánda* . . . . . 5,286 ft. Schl., Rob.

2, Pistor. Sept. 18, 10^h A.M.

A. 24 721; 66 2; 93. Mássúri 23·591; 64 4; 88 = 5,272 ft. Símla 23 224; 62 6; 97 = 5,300 ft.

No. 195. MARÓRI, 31° 4′; 79° 6′, in Gárhvál, W. of Dhánpur.

Loc. *Undefined* . . . . . 6,243 ft. I. A. 66

No. 196. KANDIAKHÁL PASS, 29° 59′; 79° 5′, in Gárhvál, between Choprakót and Kaniún . . . . . 7,718 ft. I. A. 66.

No. 197. DHÁNPUR, 30° 14′; 79° 5′, in Gárhvál, E. of Haríuli, and N.W. of Chándpur . . . . . 7,958 ft. I. A. 66.

No. 198. RÚDRU PEAK (I, or γ ♁), 30° 58′·6; 79° 4′·8, in Gárhvál, E. of the temple Gangótri.

Loc. *Top of the peak* . . . . . 21,384 ft. G. T. S.

Herb. and Hodgs. obtain for the height of this peak 22,390 ft.

Not visible in the Chíner panorama. Schl., Ad.

No. 199. SÁRGA RÚER PEAK, 30° 59′·7; 79° 4′·8 ♁, in Gárhvál, Gangótri range, E. of the temple Gangótri . . . . . 22,906 ft. Herb. and Hodgs.

The G. T. S. marks this peak β′, but we find no height mentioned. Schl., Rob.
Not visible in the Chíner panorama. Schl., Ad.

No. 200. BÓVAN, 29° 38′; 79° 4′, in Kămáon, 3 miles N. of the Ramgánga.

Loc. *Mean height of the village* . . . . . 4,622 ft. I. A. 66.

No. 201. DHUÁN MOUNTAIN, 30° 13′; 79° 4′, in Gărhvál, S.E. of the Alaknánda.

Loc. *Top of the mountain* . . . . . 9,882 ft. G. T. S. I. A. 47.

No. 202. KÍDARNATH, 30° 45′; 79° 4′, in Gărhvál, right bank of the Mandágni, near its origin.

Loc. 1) *Entrance to the Hindu temple* . . . . . 11,794 ft. Schl., Rob.

„ *ditto* . . . . . 11,753 „ I. A. 66.

2, Pistor. 1855, Sept. 20. *B* = Măssúri; *C* = Símla.

9h A.M. *A*. 19·598; 47·5; 93. *B*. 23·654; 61 5; 86 = 11,799 ft.

12h Noon. „ 19·615; 52·2; 81. „ 23 642; 64 0; 86 = 11,802 „ *C* 23 237; 62 6, 96 = 11,781 ft

Loc. 2) *Upper limit of trees in the Mandágni valley, below Kídarnath* . . . . . 11,020 ft. Schl., Rob.

= 774 ft. below Kídarnath; by aneroid.

„ 3) *Lower end of the Kídarnath glacier, and origin of the Mandágni* . . . . . 12,372 „ Schl., Rob.

2, Pistor. 1855, Sept. 21, 10h A.M. *A*. 19 209; 54 3; 64. Massuri 23·658, 59 0; 92 = 12,381 ft.
Símla 23·229; 61 9; 95 = 12,359 ft.

Loc. 4) *Confluence of the first glacier on the right side with the main Kídarnath glacier* . . . . . 13,658 ft. Schl., Rob.

2, Pistor. 1855, Sept. 22, 9h A.M. *A*. 18·249; 37 0; 75. Măssúri 23·650, 59 5; 89 = 13,668 ft.
Símla 23·229; 60·3; 94 = 13,648 ft.

Loc. 5) *Junction of the three principal branches of the Kídarnath glacier* . . . . . 15,449 ft. Schl., Rob.

2, Pistor. 1855, Sept. 22, 2h P.M. *A*. 17·638; 43·9; 76. Măssúri 23 595; 61 3; 88. — 80 = 14,533 ft.
Símla 23·220; 61·9; 92. — 15 = 14,565 ft.

Loc. 6) *Small glacier lake, right side of the Kídarnath glacier* . . . . . 13,349 ft. Schl., Rob.

2, Pistor. 1855, Sept. 22, 5h P.M. *A*. 18·473; 48·2; 85. Măssúri 23 579; 61 0; 86.

In the environs there were large patches covered with grass. The excursion to the Kídarnath glacier was chiefly made in order to discover a pass which would lead directly from Kídarnath to

Gangótri. The pass was said to have been crossed some 30 years ago; but now (1855) the glacier was so much crevassed, a to render the transit impossible. (See Ritter's Erdkunde, Vol. III., pp. 938, 946. Schl., Rob.

Nos. 203-4. SHÍPPUR PEAKS, in Gárhvál, E. of Gangótri on the Bhagirátti.

No. 203. SHÍPPUR EAST PEAK, 31° 0′·8; 79° 3′·4 ⛨. 22,076 ft. G. T. S.

No. 204. SHÍPPUR WEST PEAK, 31° 2′·5; 78° 59′·6 ⛨. 20,933 ft. G. T. S.

These peaks are not visible in the Chíner panorama; they are, however, contained in the respective hypsometrical diagram. Schl., Ad.

No. 205. KÍDARNATH, or MAHAPANTH PEAK (*a* ⛨), 30° 47′·9; 79° 3′·2, in Gárhvál, N. of Kídarnath, a Hindu temple on the Mandágni . . . . . 22,840 ft. G. T. S.

It is situated near the western extremity of the Chíner panorama, and is also visible in the Kídarkánta panorama. In the latter it presents itself under a much greater angle, being considerably less distant from the observer. Schl., Ad.

No. 206. GAURIKÚND, 30° 36′; 79° 3′, in Gárhvál, right bank of the Mandágni, below Kídarnath.

Loc. 1) *Hot springs* . . . . . 6,417 ft. Schl., Rob.

2, Pistor 1855, Sept. 24, 7h 30m A.M. *A.* 23·752; 56·5; 82. Símla 23·209; 57·9; 93.

„ 2) *Undefined* . . . . . 6,010 ft. I. A. 66.

„ 3) *Upper limit of Agrót (walnut)* . . . . . 8,116′ „ Schl., Rob.

2, Pistor. 1855, Sept. 19, 11h A.M. *A.* 22 375; 62·2; 70. Mássúri 23·611; 65·5; 85. + 15 = 8,115 ft. Símla 23 229; 63·0; 97. + 10 = 8,116 ft.

Loc. 4) *Upper limit of chesnuts* . . . . . 10,016 ft. Schl., Rob.

2, Pistor. 1855, Sept. 19, 3h P.M. *A.* 20·891; 62·2; 57. Mássúri 23·611; 66·6; 85. — 34 = 10,017 ft. Símla 23 220; 65 8; 94. — 30 = 10,015 ft.

Loc. 5) *Upper limit of "Kánchua"* . . . . . 10,559 ft. Schl., Rob.

2, Pistor. 1855, Sept. 19, 3h 30m P.M. *B* = Mássúri; *C* = Símla; *D* = Upper limit of chesnuts. *A.* 20·485; 61 7; 57. *B.* 23 607; 66 3; 86. - 40 = 10,560 ft. *C.* 23·217; 66·0; 91. - 35 = 10,559 ft. *D.* 20·886; 62·1; 58 = 10,558 ft.

No. 207. KANIÚN, 30° 1′; 79° 2′, in Gárhvál, N.E. of the Déba temple.

Loc. *Undefined* . . . . . 6,243 ft. I. A. 66.

No. 208. △ GOMÚKH, 30° 57′; 79° 2′, in Gărhvál, S.E. of the temple at Gangótri.

Loc. *Issue of the Bhagirátti from the glacier* . . . . . 12,914 ft. I. A. 65.

No. 209. LÁKAT KHĂL PASS, 29° 48′; 79° 1′, in Kămáon, E. of Gújuru Gărh. and S. of the Sáni . . . . . 6,650 ft I. A. 66.

No. 210. HARÍNLI, 30° 15′; 79° 1′, in Garhvál, S. of the Alaknánda.

Loc. *Temple* . . . . . 9,534 ft. I. A. 66

No. 211. NÉLONG, or SANGKIÓK PASS, 31° 0′·5; 79° 0′·7 E, in Garhvál-Gnári Khórsum, leading from Gnári Khórsum to the Janévi valley.

Loc. 1) *Top of the pass* . . . . . 18,312 ft. Schl., Ad.

6, Adie. 1855, Sept. 19. *B* = Símla, *C* = Massúri.

$12^h\ 30^m$ P.M. *A.* 15·457; 43 0; 0. *B.* 23·229; 64·2; 96 = 18,295 ft. *C.* 23·607; 66 9, 84 = 18,305 ft.
$2^h\ 45^m$ „ „ 15 433; 41·2; 0. „ 23·220; 65 8; 93 = 18,324 „ „ 23·611; 66 6; 85 = 18,325 „

Loc. 2) *Upper limit of shrubs on the southern slopes of the Nélong pass* . . . . . 16,961 ft. Schl., Ad.

6, Adie. 1855, Sept. 19, 4^h P.M. *A.* 16 252; 47 8; 6. Símla 23 213; 66 0; 90 = 16,963 ft.
Mássúri 23·603; 66 0, 86 = 16,959 ft.

Loc. 3) △ *Gáhópp, on the northern foot of the Nélong pass* 14,733 ft. Schl., Ad

6, Adie. 1855, Sept. 18, $2^h\ 30^m$ P.M.

A. 17·646; 53 2; 20. Símla 23·205; 66·7; 92 = 14,721 ft. Mássúri 23·614 66 9; 84 = 14,745 ft.

Loc. 4) △ *Páling Súmdo, in the upper Nélong valley* . . . 14,130 ft. Schl., Ad.

6, Adie. 1855, Sept. 22, $9^h\ 30^m$ A.M.

A. 17·973; 44·2; 22. Símla 23·233; 60 4; 94 = 14,121 ft. Mássúri 23 650, 59 9, 89 = 14,138 ft

Loc. 5) *Upper limit of leaved-trees at* △ *Chiáma Gígi* . . . 13,265 ft. Schl., Ad.

6, Adie. 1855, Sept. 24, $11^h\ 40^m$ A.M.

A. 18 614; 60·4; 20. Símla 23 205; 62 1; 89 = 13,243 ft. Mássúri 23·618; 61 2; 87 = 13,287 ft

Loc. 6) *Upper limit of conifers at* △ *Sonám, or* △ *Gnonám* 12,956 ft. Schl., Ad.

= 309 ft. below the upper limit of leaved-trees; by aneroid.

No. 212. △ BIM GÓRA, 30° 42′; 79′·0, in Gărhvál, right bank of the Mandágni, between Gaurikúnd and Kídarnath.

Loc. 1) *Foot of large stone idol* . . . . . 8,749 ft. Schl., Rob

2, Pistor. 1855, Sept. 23, $2^h\ 30^m$ P.M.

A. 21·827; 63·1; 73. Mássúri 23·583; 62·2; 87. — 22 = 8,745 ft. Símla 23 197; 62·4; 90. — 17 8,752 ft.

Loc. 2) *Spring, called "Génru páni", right bank of the Mandágni, below Kídarnáth* . . . . . 10,050 ft. Schl., Rob.

— 1,301 ft. above △ Bim Góra; by aneroid.

„ 3) *Small spring below Génru páni* . . . . . 9,698 „ Schl., Rob.

— 949 ft. above △ Bim Góra; by aneroid.

„ 4) *Upper limit of Móru and Dítra, in the Mandágni valley* . . . . . 7,985 ft. Schl., Rob.

2, Pistor. 1855, Sept. 23, 3h P.M.

A. 22 141; 66 2; 73. Mássúri 23 583; 62·1; 87 = 7,985 ft. Símla 23 193; 62·6; 91 = 7,984 ft.

No. 213. NÉLONG, 31° 5′; 79° 0′, in Gárhwál, right bank of the Janévi.

Loc. 1) *Level of the Janévi* . . . . . 11,201 ft. Schl., Ad.

6, Adie. 1855, Sept. 26, 10h 30m A.M. *B* = Símla; *C* = Mássúri. Loc. corr. — 34 ft.

A. 19 989; 54·0, 37.· *B*, 23 224; 60·8; 90 = 11,198 ft. *C* 23·599; 66·2; 87 = 11,204 ft.

„ 2) *Mean height of the village* . . . . . 11,350 ft. Schl., Ad.

„ *ditto* . . . . . 11,127 „ Herb. and Hodgs.

„ 3) *Upper limit of fir-trees (Chir) in the Janévi valley, below Nélong* . . . . . 11,090 ft. Schl., Ad.

— 111 ft. below the level of the Janévi; by aneroid.

„ 4) *Upper limit of Deodára, in the Janévi valley, below Nélong* . . . . . 10,200 „ Schl., Ad.

890 ft. below the upper limit of fir-trees (Chir); by aneroid.

„ 5) *Junction of the Bhagirátti and Janévi, between Nélong and Múkba* . . . . . 8,311 ft. Schl., Ad.

6, Adie. 1855, Sept. 27, 5h P.M. *A.* 22 146; 60·1; 40. Mássúri 23 560; 62·8; 92. — 17 ft.

„ 6) *Confluence of the Yérla and Sangkiók* . . . . . 11,691 ft. Schl., Ad.

6, Adie. 1855, Sept. 25, 7h A.M. *A.* 19 662; 53·2; 40. Símla 23·213; 55 0; 91. + 46 ft.

No. 214. BHAGIRÁTTI PEAK (No. 2, or α ♆), 30° 56′·5; 78° 59′·1, in Gárhwál, near the origin of the Bhagirátti . . . . . 21,390 ft. G. T. S.

Herbert and Hodgson, who call this peak the "Pyramid", give Lat. N. 30° 54′·6; Long. E. Gr. 79° 2′·8; Height 21,379 ft.

No. 215. BARÁSU, 30° 35′; 78° 59′, in Gărhvál, right bank of the Mandágni, between Maikánda and Gaurikúnd.

Loc. *Large tree surrounded by stones* . . . . . 5,279 ft. Schl., Rob.

2, Pistor. 1855, Sept. 18, 12h Noon.
A. 24·729; 71·8; 63. Măssúri 23·595; 66· 86. + 13 = 5,270 ft. Símla 23·217; 64·4; 95. + 18 = 5,287 ft.

No. 216. THARLASÁGER PEAK, 30° 51′·7; 78° 58′·8, in Gărhvál, S.E. of Gangótri temple, on the right bank of the Bhagirátti . . . . . 22,628 ft. G. T. S.

Herbert and Hodgson, who call this peak "Mount Moira", obtain as its height 22,792 ft.
Not visible in the Chíner panorama. Schl., Ad.

No. 217. DÁILA MOUNTAIN, 29° 26′·4; 78° 58′·5, in Kămáon, 10 miles S. of the Ramgánga . . . . . 2,334 ft. G. T. S.

No. 218. DÉBA, 29° 56′; 78° 58′, in Kămáon, N. of the Sáni.

Loc. *Temple* . . . . . 8,753 ft. I. A. 66.

No. 219. KARATKÓTI, or AKRAKÓTI, 30° 36′; 78° 57′, in Gărhvál, on the right bank of the Mandágni, 3 miles S. of Munkáta Ganés.

Loc. *Mean height of the village* . . . . . 6,117 ft. Schl., Rob.

2, Pistor. 1855, Sept. 18, 1h 30m P.M. *B* = Măssúri; *C* = Símla; *D* = Barásu.
A. 23·996; 69·4; 75. *B.* 23·595; 66·7; 86 = 6,112 ft. *C.* 23·209; 66·0; 94 = 6,113 ft. *D.* 24·720; 72·8; 70 = 6,126 ft.

No. 220. MUNKÁTA GANÉS, 30° 38′; 78 57′, in Gărhvál, right bank of the Mandágni, below Gaurikúnd.

Loc. 1) *Temple* . . . . . 5,990 ft. Schl., Rob.

2, Pistor. 1855, Sept. 24, 9h A.M. *A.* 24·119; 64·9; 74. Măssúri 23·614; 61·7; 90 = 5,996 ft.
Símla 23·213; 60·1; 91; = 5,984 ft.

Loc. 2) *Undefined* . . . . . 5,693 ft. I. A. 66.

No. 221. LEÓMIA, 29° 39′; 78° 56′, in Kămáon, near the Mándal, an affluent of the Ramgánga.

Loc. *Level of the Mándal* . . . . . 1,763 ft. I. A. 66.

No. 222. TRÍJUGI NARÁIN, 30° 41′; 78° 56′, in Gărhvál, W. of the Mandágni.

Loc. 1) *Entrance to the Hindu temple* . . . . . 7,217 ft. Schl., Rob.

2, Pistor. 1855, Sept. 25, 9h 45m A.M. *B* = Măssúri; *C* = Símla. Loc. corr. — 7 ft.
A. 23·079; 63·0; 89. *B.* 23·611; 63·3; 88 = 7,222 ft. *C.* 23·213; 60·1; 89 = 7,212 ft.

Loc. 2) *Spring S.W. of Trijugi Naráin. Exposition S.* . . . 7,844 ft. Schl., Rob.

2, Pistor. 1855, Sept. 25, $10^h\ 45^m$ A.M.

A. 22 575; 61 7; 88. Mássúri 23·614; 64·0; 90 = 7,851 ft. Símla 23·213; 61 2; 88 = 7,886 ft.

Loc. 3) △ *Kandétu, a fine pasture ground, between Trijugi Naráin and the Mángu pass* . . . . . 8,942 ft. Schl., Rob.

2, Pistor. 1855, Sept. 25, $12^h\ 30^m$ P.M.

A. 21 697; 60 4; 80. Mássúri 23 614; 64 9; 85. — 24 = 8,951 ft. Símla 23 209; 63 0; 86. — 19 = 8,932 ft.

No. 223. GANGÓTRI, 31° 0′; 78° 56′, in Gárhwál, a celebrated Hindu temple on the right bank of the Bhagirátti, in its upper course.

Loc. *Temple* . . . . . 10,319 ft. Herb. and Hodgs.

No. 224. LÁMBA THÁT, 31° 3′; 78° 56′, in Gárhwál, left bank of the Janévi, N. of Gangótri.

Loc. *Level of the Janévi* . . . . . 10,349 ft. Herb. and Hodgs.

Nos. 225-9. SRIKÁNTA PEAKS, in Garhwál, between the Bhagirátti and Bhíllung.

No. 225. SRIKÁNTA PEAK No. 3 ⅄, 30° 53′·9; 78° 55′·1 . . 20,844 ft. G. T. S.

No. 226. SRIKÁNTA PEAK *h* ⅄, 30° 55′·1; 78° 49′·9 . . . . 21,911 ft. G. T. S.

Herbert and Hodgson, who mark this peak "*T*," obtain as its height 21,964 ft.

No. 227. SRIKÁNTA PEAK *j* ⅄, 30° 43′·8; 78° 48′·4 . . . . 16,934 ft. G. T. S.

No. 228. SRIKÁNTA CENTRAL PEAK 30° 56′·1; 78° 48′·1 ⅄ . 20,105 ft. G. T. S.

No. 229. SRIKÁNTA PEAK *d* ⅄, 30° 57′·4; 78° 47′·4 . . . . . 20,130 ft. G. T. S.

A long snowy crest with high peaks in the eastern parts of the Kidarkánta panorama. Srikánta peak No. 3 is not visible. Schl., Ad.

No. 230. GHÚNTI MOUNTAIN, 29° 45′·5; 78° 54′·4 ⅄, in Kámáon, 10 miles N. of the Ramgánga . . . . . 7,018 ft. G. T. S.

No. 231. NÉLONG PEAK (*R*′ ⅄), 31° 6′·6; 78° 54′·2, in Gárhwál, W. of Nélong, a village in the upper part of the Janévi, an affluent of the Bhagirátti . . 19,694 ft. G. T. S.

No. 232. BANRÁRI, 30° 10′; 78° 54′, in Gărhvál, S. of the Alaknánda.

Loc. *Temple* . . . . . 6,959 ft. I. A. 66.

No. 233. BHILÁDI, 29° 51′; 78° 51′, in Gărhvál, on the right bank of the Sáni.

Loc. *Level of the Sáni* . . . . . 2,803 ft. I. A. 66.

No. 234. JÁŬLI PEAK (*i* ⛨), 30° 51′·3; 78° 50′·5, in Gărhvál, E. of the Bhagirátti.

Loc. *Top of the peak* . . . . . 21,784 ft. G. T. S.

Herbert and Hodgson, who mark this peak "*C*," obtain as its height 21,940 ft. Schl., Rob.

This is the westernmost peak of the Chíner panorama. Schl., Ad.

No. 235. MÁNGU PASS, 30° 35′; 78° 50′, in Gărhvál.

Loc. 1) *Top of the pass* . . . . . 10,599 ft. Schl., Rob.

2, Pistor. 1855, Sept. 25 and 26.

3h 30m P.M. *A.* 20·402; 59·4; 78. Símla 23·193; 65 3; 85. — 70 = 10,600 ft.

8h 0m A.M. „ 20·473; 50·4; 80. „ 23·217; 56·5; 92. + 69 = 10,598 „

Loc. 2) *Kinkuáli pass, W. of the Mángu pass* . . . . . 11,552 ft. Schl., Rob

2, Pistor. 1855, Sept. 26, 10h A.M.

A. 19·737; 47 8; 78. Mássúri 23 591; 64·9; 88 = 11,549 ft. Símla 23·224; 60 1, 91 = 11,555 ft.

Loc. 3) *Upper limit of oaks on the eastern slopes of the Kinkuáli pass* . . . . . 11,166 ft. Schl., Rob.

2, Pistor. 1855, Sept. 26, 9h 30m A.M. *B* = Mássúri; *C* = Símla; *D* = Kinkuáli pass.

A. 20·020; 51·8; 78. *B.* 23·589; 64·4; 89 = 11,167 ft. *C.* 23·220; 59·2, 90 = 11,169 ft

D. 19 735; 47·0; 76 = 11,162 ft.

Loc. 4) *Upper limit of fir-trees (Rágha) on the eastern slopes of the Kinkuáli pass* . . . . . 11,033 ft. Schl., Rob.

2, Pistor. 1855, Sept. 26, 9h A.M. *B* = Mássúri; *C* = Símla, *D* = Upper limit of oaks.

A. 20·114; 51 1; 78. *B.* 23·587; 63 9; 90 = 11,027 ft. *C.* 23 220; 58 5; 91 = 11,035 ft.

D. 20·020; 51·5; 76 = 11,038 ft.

Nos. 236-7. JHÁLA PEAKS,

in Gărhvál, in the ridge between the Bhagirátti and Báspa.

No. 236. JHÁLA EAST PEAK, 31° 7′·9; 78° 49′·6 ⛨. 19,962 ft. G. T. S.

No. 237. JHÁLA WEST PEAK, 31° 7′·9; 78° 45′·8 ⛨. 18,659 ft. G. T. S.

Herbert and Hodgson obtain for this peak a height of 18,795 ft. Schl., Rob.

No. 238. GÁNGI, 30° 32′; 78° 48′, in Gărhvál, right bank of the Bhíllung.

Loc. 1) *Mean height of the village* . . . . . 8,150 ft. Schl., Rob.

2, Pistor. 1855, Sept. 27, 9h A.M.

A. 22·323; 54·0; 90. Mássúri 23·599; 64 6; 89 = 8,137 ft. Símla 23·233; 58·5; 90 = 8,162 ft.

Loc. 2) *Buáli Kánta pass, N. of Gángi* . . . . . 11,634 ft. Schl., Rob.

2, Pistor. 1855, Sept. 26, 1h P.M.

A. 19 689; 48·2; 70. Mássúri 23 607; 64 6; 86 = 11,634 ft. Símla 23 217; 63·7; 88 = 11,634 ft.

Loc. 3) *Mean height of the ridge between the Buáli Kánta and Kinkuáli pass* . . . . . 11,970 ft. Schl., Rob.

Trigonometrically measured.

No. 239. MÚKBA, 31° 2′; 78° 46′, in Gărhvál, right bank of the Bhagirátti, but above the level of the river.

Loc. 1) *Mean height of the village* . . . . . 8,600 ft. Schl., Ad.

6, Adie. 1855, Oct. 1, 9h 15m A.M.

A. 22 039; 58·6; 50. Símla 23·296; 57 0; 80 = 8,602 ft. Mássúri 23 674; 63·7; 86 = 8,598 ft.

Loc. 2) *Level of the Bhagirátti at the bridge below Múkba* . . 8,154 ft. Schl., Ad.

6, Adie. 1855, Oct. 1, 11h 45m A.M.

A. 22·375; 63·9; 35. Símla 23·284; 61·0; 72. — 22 = 8,155 ft. Mássúr 23 670; 66 4; 87. — 31 = 8,152 ft.

Loc. 3) △ *Chílding, between Múkba and the junction of the Janévi and Bhagirátti* . . . . . 8,620 ft. Schl., Ad.

6, Adie. 1855, Sept. 28, 7h A.M. *A.* 21 985; 49·6; 56. Símla 23·245; 54·5; 84. | 50 ft.

Loc. 4) △ *Bhúiro Ghátí, junction of the Janévi and Bhagirátti* . . . . . 8,511 ft. Herb. and Hodgs.

No. 240. GÚLI, 29° 54′; 78° 44′, in Kămáon, on the left bank of the Sáni.

Loc. *Level of the Sáni* . . . . . 1,786 ft. I. A. 66.

No. 241. NALÁNA KÁNTA PASS, 30° 32′; 78° 43′, in Gărhvál, between Gángi and △ Minasáura.

Loc. 1) *Top of the pass* . . . . . 8,946 ft. Schl., Rob.

7, Thermo-barom. 1855, Sept. 28, 12h Noon. *B* = Mássúri; *C* = Símla.

A. 196° 31 Fahr.; 60 8; 73. *B.* 23·634; 66·9; 84. — 47 — 8,935 ft. *C.* 23·268; 62·1; 81. — 38 = 8,957 ft.

Loc. 2) △ *Minasáura, a fine meadow on the eastern slopes of the Nalána Kánta pass* . . . . . 9,631 ft. Schl., Rob.

2, Pistor. 1855, Sept. 28, 6h P.M. *A.* 21·177; 43·5; 82. Símla 23·249; 62·2; 82.

No. 242. KATÁRI KÁNTA PASS, 30° 35′; 78° 43′, in Gărhvál, between △ Minasáura and Giunáli.

Loc. 1) *Top of the pass* . . . . . 11,084 ft. Schk, Rob.

7, Thermo-barom. 1855, Sept. 29, 11h A.M. *B* = Măssúri; *C* = Símla.

A. 192°·68 Fahr.; 58·1; .54. *B*. 23·626; 66·7; 82. — 45 = 11,075 ft. *C*. 23·272; 60 8; 75. — 41 = 11,093 ft.

Loc. 2) *Upper limit of fir-trees (Rágha) on the south-western slopes of the Katári Kánta pass* . . . . . 10,380 ft. Schl., Rob.
= 704 ft. below the top of the pass; by aneroid.

„ 3) *Upper limit of fir-trees (Tunêr) on the western slopes of the Katári Kánta pass* . . . . . 9,910 ft. Schl., Rob.
= 1,174 ft. below the top of the pass; by aneroid.

„ 4) *Upper limit of "Móru" on the southern slopes* . . . . 8,350 ft. Schl., Rob.
= 2,734 ft. below the top of the pass; by aneroid.

No. 243. KALDÚNKAR KÁNTA PASS, 30° 40′; 78° 43′. in Gărhvál, between Giunáli and Binsoár, E. of the Bhagirátti.

Loc. 1) *Top of the pass* . . . . . 9,869 ft. Schl., Rob

7, Thermo-barom. 1855, Sept. 30, 3h P.M. *B* = Măssúri; *C* = Símla.

A. 194°·68 Fahr.; 57·6; 84. *B*. 23·611; 65·1; 84. — 66 = 9,838 ft. *C*. 23·268; 64·9; 80. — 58 = 9,900 ft.

Loc. 2) *Masertál, two small lakes on the N.W. slopes of the Kaldúnkar Kánta pass* . . . . . 9,520 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 1, 9h A.M. *A*. 195°·44 Fahr., 57 9; 42. Símla 23·296; 55 9; 74.

No. 244. RANIGÁRH MOUNTAIN, 30° 3′·9; 78° 42′·0 ☥, in Garhvál, 8 miles E. of the Alaknánda . . . . . 7,151 ft. G. T. S

No. 245. GIUNÁLI, 30° 37′; 78° 42′, in Gărhvál, left bank of the Balgánga.

Loc. 1) *Mean height of the village* . . . . . 7,152 ft. Schl., Rob.

2, Pistor. 1855, Sept. 30, 9h A.M. *B* = Măssúri; *C* = Símla.

A. 23·224; 56·3; 96. *B*. 23·693; 63·7; 82 = 7,147 ft. *C*. 23·308; 58 1; 80 = 7,157 ft

Loc. 2) *Level of the Balgánga at the bridge below Giunáli*. . 6,287 ft. Schl., Rob.

7, Thermo-barom. 1855, Sept. 30, 10h A.M.

A. 200°·99 Fahr.; 61·2; 94. Măssúri 23·666; 64·6; 83 = 6,271 ft. Símla 23 299; 60 1; 78 = 6,303 ft.

No. 246. SÚKHI, 30° 59′; 78° 42′, in Gărhvál, right bank of the Bhagirátti, but above the river.

Loc. 1) *Mean height of the village* . . . . . 8,401 ft. Schl., Rob.

„ *ditto* . . . . . 8,869 „ Herb. and Hodgs.

7, Thermo-barom. 1855, Oct. 8, 8h A.M. *A.* 197°·23 Fahr.; 47 8; 55. Símla 28·233; 52·7; 70. + 26 ft.

Loc. 2) *Level of the Bhagirátti at Súkhi* . . . . . 7,608 ft. Herb. and Hodgs.

Nos. 247-51. Chétkul Peaks,

in Gárhwál-Kánáur, in the range between the Báspa and Tódung Gar.

No. 247. Chétkul Peak β ⅄, 31° 20′·3; 78° 41′·5. . . . 19,338 ft. G. T. S.

No. 248. Chétkul Peak *D* ⅄, 31° 20′·2; 78° 39′·7 . . . 19,813 ft. G. T. S.

No. 249. Chétkul Peak *x*, or *O* ⅄, 31° 21′·3; 78° 36′·1 . 21,517 ft. G. T. S.

No. 250. Chétkul Peak *P*, or *D* ⅄, 31° 20′·1; 78° 35′·3 . 21,159 ft. G. T. S.

No. 251. Chétkul Peak α ⅄, 31° 19′·6; 78° 34′·4 . . . 21,211 ft. G. T. S.

A part of this group, but probably no proper peak, appears to be visible in the Kidarkánta panorama, to the right of the Dónkiar mountain. Schl., Ad.

No. 252. Girjvála Mountain, 29° 32′·9; 78° 41′·1 ⅄, in Kámáon, N. of the Ramgánga.

Loc. *Top of the mountain* . . . . . 2,821 ft. G. T. S.

No. 253. Úri, or Húri, 30° 54′; 78° 41′, in Gárhwál, left bank of the Bhagirátti.

Loc. *Hot spring, called "Rákhi"* . . . . . 6,252 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 6, 9h 30m A.M.

A 200 96 Fahr.; 54 1, 88. Massúri 23·650; 64·6; 88 = 6,272 ft. Símla 23 217; 57·2; 80 = 6,231 ft.

Nos. 254-5. Néla Peaks,

in Gárhwál, near the source of the Báspa, one of the larger tributaries of the Sátlej.

No. 254. Néla East Peak, 31° 11′·2; 78° 45′·1 ⅄. . 19,655 ft. G. T. S.

No. 255. Néla West Peak, 31° 11′·9; 78° 40′·2 ⅄. . 19,086 ft. G. T. S.

Both of the Néla peaks are seen in the Kidarkánta panorama; they seem to form a general group with the Damdár peaks, though the latter are considerably nearer to the observer. Schl., Ad.

No. 256. BILKHÉT, 29° 58′; 78° 40′, in Gărhvál, on the right bank of the Sáni.

Loc. *Level of the Sáni* . . . . . 1,894 ft. I. A. 66.

No. 257. BINSOÁR, 30° 42′; 78° 40′, in Gărhvál, right bank of the Binsoár, an affluent to the left of the Bhagirátti.

Loc. *Mean height of the village* . . . . . 8,097 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 1, 6h P.M. *A.* 197° 77 Fahr.; 53 4; 89. Símla 23 249; 59 5; 70.

No. 258. KANTÁRA KÁNTA PASS, 30° 59′; 78° 40′, in Gărhvál, W. of Súkhi.

Loc. *Top of the pass* . . . . . 11,518 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 9, 1h P.M. *A.* 191° 75 Fahr.; 46·8; 37. Símla 23 233; 57 6, 59. - 45 ft.

No. 259. KANDÁL GHAT, 31° 0′; 78° 40′, in Gărhvál, a small pass E. of Súkhi, in the upper Bhagirátti valley . . . . . 11,893 ft. Herb. and Hodgs

---

No. 260. BHÍLLUNG, 30° 47′; 78° 39′, in Gărhvál, a small village of seven houses, right bank of the Bhíllung.

Loc. *Mean height of the village* . . . . . 7,570 ft. Schl., Rob

7, Thermo-barom. 1855, Oct. 4, 8h A.M. *A.* 198° 64 Fahr.; 52 5; 59. Símla 23·233, 54 7; 82.

No. 261. △ GÚFA UDÁR, 30° 59′; 78° 39′, in Gărhvál, above the confluence of the Ríni and Sun.

Loc. 1) *Entrance to the cave* . . . . . 9,377 ft. Schl., Rob

7, Thermo-barom. 1855, Oct. 9, 6h P.M. *A.* 195° 49 Fahr.; 44·1; 76. Mássúri 23 626; 58 1; 77.

Loc. 2) *Confluence of the Ríni and Sun* . . . . . 9,340 ft. Schl., Rob.

= 37 ft. below the entrance to the cave; by aneroid.

No. 262. LANGÚR, 29° 56′; 78° 38′, in Gărhvál, W. of the Sáni.

Loc. *Fort* . . . . . 6,367 ft. I. A. 66.

No. 263. BÁLUNG, 30° 45′; 78° 38′, in Gărhvál, on the south-eastern slopes of the Ghus pass.

Loc. *Mr. Wilson's house* . . . . . 8,149 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 3, 9h A.M. *A.* 197°·75 Fahr.; 52 9; 88. Símla 23 284; 56·7; 80.

No. 264. SÁLUNG, 30° 50′; 78° 38′, in Gărhvál, left bank of the Bhagirátti, nearly opposite Ráital.

Loc. *Mean height of the village* . . . . . 6,455 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 5, 8h 15m A.M. *A.* 200°·57 Fahr.; 54·1; 79. Simla 23·220; 55·0; 80.

No. 265. SARGORÓIN PEAK, 31° 7′·6; 78° 37′·6 ⅄, in Gărhvál, near Damdár, N. of the Bhagirátti . . . . . 18,937 ft. G.T.S.

It is a prominent object in the Kidarkánta panorama. Schl., Ad.

No. 266. CHÁNDRA BADÁNI MOUNTAIN, 30° 18′; 78° 37′, in Gărhvál, N.W. of Srinágger, and E. of the Bhagirátti . . . . . 7,661 ft. Herb. and Hodgs.

No. 267. CHÁIA PASS, 30° 58′; 78° 37′, in Gărhvál, the first pass between the Bhagirátti and Jámna valleys.

Loc. 1) *Top of the pass.* . . . . . 14,961 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 11, 11h A.M. *A.* 185°·75 Fahr.; 33·8; 52. Simla 23·185; 59·0; 65.

Loc. 2) *Lower end of a small glacier on the northern slopes of the Cháia pass, E. of △ Chímpula* . . . . . 10,520 ft. Schl., Rob.

= 4,441 ft. below the Cháia pass; by aneroid.

Loc. 3) *△ Chímpula, northern foot of the Cháia pass* . . . . . 12,665 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 10, 5h 30m P.M. *A.* 189°·78 Fahr.; 34·2; 78. Mássúri 23·642; 58·6; 71.

No. 268. CHÉTKUL, 31° 20′; 78° 36′, in Gărhvál, in the upper course of the Báspa.

Loc. 1) *Mean height of the village* . . . . . 11,480 ft. Ger.

„ 2) *Level of the Báspa* . . . . . 11,275 „ Ger.

Nos. 269-70. DAMDÁR PEAKS, in Gărhvál, N. of the Bhagirátti.

No. 269. DAMDÁR EAST PEAK, 31° 8′·9; 78° 35′·5 ⅄ . 19,577 ft. G.T.S.

No. 270. DAMDÁR WEST PEAK, 31° 8′·8; 78° 34′·9 ⅄ . 19,621 ft. G.T.S.

Their apparent vicinity to the Néla peaks in the Kídarnath panorama prevented us from distinctly recognising the single peaks. Schl., Ad.

No. 271. DEOPREÁG, 30° 8′; 78° 35′, in Gărhvál, at the confluence of the Alaknánda and Bhagirátti.

Loc. 1) *Temple* . . . . . 2,266 ft. Herb. and Hodgs.

„ 2) *Level of the confluence* . . . . . 1,953 „ Herb. and Hodgs.

No. 272. UCHALÁRU PEAK, 30° 54′; 78° 35′, in Gărhvál, in the ridge between the Jámna and Bhagirátti.

Loc. 1) *Top of the peak* . . . . . 14,302 ft. Herb. and Hodgs.

„ 2) *Upper limit of trees* . . . . . 11,800 „ Herb. and Hodgs.

A blue mountain seen as the first point of some elevation to the right in the Kidarkánta panorama. Schl., Ad.

No. 273. KINSÚRA, 30° 3′; 78° 34′, in Gărhvál, on the confluence of the Alaknánda and Sáni.

Loc. *Level of the confluence* . . . . . 1,342 ft. I. A. 66.

No. 274. RÁITAL, 30° 49′; 78° 34′, in Gărhvál, near the right bank of the Bhagirátti.

Loc. *Mean height of the village* . . . . . 6,949 ft. Herb. and Hodgs.

No. 275. DAMDÁR, or HAT KA ZÁŨRA PASS, 31° 3′; 78° 34′, in Garhvál, leading from the Bhagirátti to the Tons valley.

Loc. 1) *Top of the pass* . . . . . 17,479 ft. Schl., Ad.

6, Adie. 1855, Oct. 4. *B* = Símla; C = Mässúri.

h
3 P.M. *A.* 15·744; 47·6; 100. *B.* 23 224; 65·3; 69 = 17,500 ft. *C.* 23·603; 64 9; 88 = 17,461 ft.
4 „ „ 15·740; 47·6; 100. „ 23·224; 64·9; 69 = 17,505 „ „ 23 599; 63 7; 88 = 17,448 „

The situation of the depression formed by this pass can be approximatively seen in the Kidarkánta panorama. Schl., Ad.

Loc. 2) *Lower end of the Ráthi glacier* . . . . . 14,920 ft. Schl., Ad.
= 2,559 ft. below the Damdár pass; by aneroid.

„ 3) *Junction of the two principal branches of the Ráthi glacier* . . . . . 15,987 „ Schl., Ad.

6, Adie. 1855, Oct. 4, 12h Noon.

A. 16·827; 44·6; 36. Símla 23·237; 62·1; 75 = 15,958 ft. Mássúri 23·634; 67·1; 88 = 16,016 ft.

Loc. 4) *Beginning of the "névé" at the Tons glacier* . . . . . 15,603 ft. Schl., Ad.

6, Adie. 1855, Oct. 4, 5h 30m P.M.

A. 16·902; 25·3; 80. Símla 23·224; 59·5; 71 = 15,610 ft. Mässúri 23 591; 62 6; 86 = 15,596 ft.

The Tons glacier is situated on the western slopes of the Damdár, or Hat ka Záũra pass.

Loc. 5) △ *Balchán, right side of the Tons glacier* . . . . . 14,501 ft. Schl., Ad.

6, Adie. 1855, Oct. 5, 9h A.M. *A.* 17 599; 29 1; 60. Símla 23 220; 54·5; 80.

„ 6) *Source of the Tons* . . . . . 12,784 ft. Herb. and Hodgs.

„ 7) △ *Do Hámdo, confluence of the two rivers, forming the Shingád: level of the junction* . . . . . 13,211 „ Schl., Ad.

6, Adie. 1855, Oct. 3. *B* = Símla; *C* = Mássúri. Loc. corr. — 40 ft.
2h P.M. *A.* 18 532; 12 4; 34. *B.* 23·249; 65 3; 70. — 62 = 13,212 ft. *C.* 23 642; 65·7; 87. — 67 = 13,209 ft.

Loc. 8) *Confluence of the Shingád with the Bhagirátti* . . . . 7,961 ft. Schl., Ad.

6, Adie 1855, Oct. 2, 6h A.M. *A.* 22·532; 16·0; 62. Símla 23·276; 54·3; 70. + 17 ft.

„ 9) △ *Bákri, in the upper Damdár valley* . . . . . 11,911 ft. Schl., Ad

6, Adie. 1855, Oct. 3, 9h 30m A.M.
A. 19 540, 52 3; 50 Símla 23 264; 57·6; 80 = 11,886 ft. Mássúri 23 674; 63 1; 86 = 11,936 ft.

No. 276. Harpalisé Mountain, 29° 39′·7; 78° 32′·4 ⏚, in Gárhwál, 12 miles E. of Nazirabád.

Loc. *Top of the mountain* . . . . . 2,944 ft. G. T. S.

No. 277. Bánderpúch Peak (*l* ⏚), 31° 0′·2; 78° 32′·3, in Gárhwál, N.E. of △ Jámnótri, on the right bank of the Jámna . . . . . 20,743 ft. G. T. S.

Herbert and Hodgson, who mark this peak "Great *E*", give as its height 20,916 ft.

A high double-pointed crest in the eastern parts of the Kidarkánta panorama. Schl., Ad.

No. 278. Bámsuru Pass, 30° 56′; 78° 32′, in Gárhwál, the second pass from the Bhagirátti to the Jámna valley.

Loc. 1) *Top of the pass* . . . . . 15,460 ft. Schl., Rob.

„ *ditto* . . . . . 15,477 „ Herb. and Hodgs

7, Thermo-barom. 1855, Oct. 11, 4h P.M. *A.* 185°·07 Fahr.; 36·0; 92. Símla 23·205; 63·9; 60.

Loc. 2) *Upper limit of shrubs on the western slopes of the Bámsuru pass.* . . . . . 13,520 ft. Schl., Rob.

= 1,940 ft. below the top of the Bámsuru pass; by aneroid.

No. 279. Changsákha Peak (*s″* ⏚), 31° 13′·2; 78° 31′·0, in Gárhwál, S. of the Báspa . . . . . 20,434 ft. G. T. S.

Herbert and Hodgson, who mark this peak "The Cone, or *S*", obtain as its height 21,178 ft. Schl., Rob.

A very pointed peak, visible in the Kidarkánta panorama. Schl., Ad.

Nos. 280-4. BÁSPA PEAKS, in Gărhvál, S. of the Báspa.

No. 280. BÁSPA PEAK ♅, 31° 14′·1; 78° 31′·1. 20,609 ft. G. T. S.

No. 281. BÁSPA PEAK ♄, 31° 15′·5; 78° 25′·2. 19,193 ft. G. T. S.

No. 282. BÁSPA PEAK *R*, 31° 14′·4; 78° 23′·8. 19,285 ft. G. T. S.
Herbert and Hodgson, who mark this peak "*a* No. 39", obtain as its height 19,481 ft.

No. 283. BÁSPA PEAK δ, 31° 16′·3; 78° 22′·3. 19,334 ft. G. T. S.

No. 284. BÁSPA PEAK γ, 31° 17′·2; 78° 21′·4. 18,754 ft. G. T. S.

No. 285. △ GURMŐ, 30° 55′; 78° 29′, in Gărhvál, S.W. of the Bámsuru pass.

Loc. 1) *Pasture ground* . . . . . 11,544 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 13, 9^h 15^m A.M. *A.* 191° 71 Fahr.; 17·7; 29. Simla 23·201; 55 2, 66.

Loc. 2) △ *Bi ka Udár, a cave E. of Gurmő, generally used as encamping ground* . . . . . 11,927 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 12, 10^h A.M. *A.* 190° 99 Fahr.; 42 8; 28. Simla 23 193; 55·9; 67
At Bi ka Udár is also the upper limit of trees.

No. 286. △ JĂMNÓTRI, 31° 0′; 78° 29′, in Gărhvál, on the left bank of the Jámna, about 8 miles N. of Khärsáli.

Loc. 1) *Hot spring "Bássu Tára" and level of the Jámna.* . 9,793 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 14, 1^h 45^m P.M.
A. 191° 80 Fahr.; 48·9, 61. Mässúri 23·638; 64 9; 73. — 32 = 9,800 ft. Simla 23 229; 65 1; 58. — 27 = 9,785 ft.

Loc. 2) *Source of the Jámna* . . . . . 10,849 ft. Herb. and Hodgs

No. 287. RISSÁR KA TAL, 31° 3′; 78° 29′, in Gărhvál, a lake in the upper Tons valley.

Loc. 1) *Level of the lake* . . . . . 11,787 ft. Schl., Ad.

6, Adie. 1855, Oct. 5, 5^h P.M.
A. 19·493; 40·6; 40. Simla 23·217; 61·3; 71. — 18 = 11,803 ft. Massúri 23 587; 61 7; 89. — 52 11,770 ft.

Loc. 2) *Source of the Tons and lower end of Tons glacier* . 12,356 ft. Schl., Ad

6, Adie. 1855, Oct. 5, 3^h P.M.
A. 19 119; 42·3; 49. Simla 23·220; 65·3; 69. — 53 = 12,368 ft. Mässúri 23 595; 63 9; 92. — 58 = 12,343 ft.

Loc. 3) *End of the remains of an old terminal moraine of the Tons glacier* . . . . . 12,530 ft. Schl, Ad.
= 174 ft. above the present lower end; by aneroid.

No. 288. TÍRI, 30° 22′; 78° 28′, in Gărhvál, on the confluence of the Bhagirátti and Bhíllung.

Loc. 1) *Level of the confluence* . . . . . 2,278 ft. Herb. and Hodgs.

„ 2) *Mean height of the village* . . . . . 2,328 „ Herb. and Hodgs.

No. 289. KÁLA UZÚRA, 30° 55′; 78° 27′, in Gărhvál, a lateral pass between Khărsáli and Gurmó.

Loc. 1) *Top of the pass* . . . . . 12,498 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 13, 10h A.M. *A.* 190°·10 Fahr.; 47 8; 15. Símla 23 201; 57·4; 63.

Loc. 2) △ *Dig Dar, a depression in a ridge* . . . . . 12,858 ft. Schl., Rob.

= 360 ft. above the top of Kála Uzúra; by aneroid.

No. 290. KHĂRSÁLI, 30° 57′; 78° 27′, in Gărhvál, on the left bank of the Jámna.

Loc. 1) *Paved place in the village* . . . . . 8,374 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 15, 9h 45m A.M.

A. 197° 32 Fahr.; 53 2; 40. Mássúri 23 674; 63·3; 69 = 8,397 ft. Símla 23·249; 55 4; 60 = 8,350 ft.

Loc. 2) *Tepid spring "Tátta páni", on the right bank of the Jámna, between Khărsáli and Jămnótri* . . . . . 8,653 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 14, 9h A.M. *A.* 196°·69 Fahr.; 40·6; 74. Símla 23·217; 54 1; 64.

Loc. 3) *Upper limit of oaks, on the slopes falling N.W. to the Jámna* . . . . . 12,010 ft. Schl., Rob.

= 3,636 ft. above Khărsáli; by aneroid.

No. 291. MARBAGÁRH MOUNTAIN, 29° 52′·6; 78° 26′·4 ♁, in Gărhvál, 2 miles N. of Mahabáli temple . . . . . 5,716 ft. G. T. S.

No. 292. MAHABÁLI, 29° 52′; 78° 26′, in Gărhvál, S. of the Sáni.

Loc. *Temple* . . . . . 5,649 ft. I. A. 66.

No. 293. GHANDIÁL MOUNTAIN, 30° 13′·3; 78° 24′·5 ♁, in Gărhvál, 6 miles S.W. of the Bhagirátti . . . . . 2,460 ft. G. T. S.

No. 294. GURIÁLI PASS, 30° 18′; 78° 24′, in Gărhvál, 3 miles W. of the Bhagirátti.

Loc. *Top of the pass* . . . . . 7,041 ft. Herb. and Hodgs.

No. 295. CHÁMBA, 30° 20′; 78° 24′, in Gărhvál, W. of the Bhagirátti, and S.W. of Tíri.

Loc. *Stockade* . . . . . 5,541 ft. Herb. and Hodgs.

No. 296. RÁNA, 30° 54′; 78° 24′, in Gărhvál, left bank of the Jámna, S.W. of Khărsáli.

Loc. 1) *Paved place in the village* . . . . . 6,773 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 16, 7h A.M. *A.* 200° 11 Fahr.; 46·4; 61. Símla 23·260; 51. 1; 60.

Loc. 2) *Hot spring at Banássa* . . . . . 7,478 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 15, 1h P.M. *B* = Mässúri; *C* = Símla.

A. 198°·89 Fahr.; 73·8; 70. *B.* 23·654; 64·8; 70 = 7,488 ft. *C.* 23·253; 62 6; 56 7,468 ft.

No. 297. HÁRPU RIVER, 31° 6′; 78° 24′, in Gărhvál, joining the Tons above Ussílla.

Loc. *Level of the junction* . . . . . 9,562 ft. Schl., Ad.

6, Adie. 1855, Oct. 6. *B* = Símla; *C* = Mässúri. Loc. corr. — 18 ft.

12h 10m P.M. *A.* 21·197; 52·2; 48. *B.* 23·220; 62·4; 75. — 26 = 9,548 ft. *C.* 23 626; 66 2. 92. — 30 = 9,573 ft

---

No. 298. VÓDRI, or VAZIRGÁRH, 30° 53′; 78° 21′, in Gărhvál, right bank of the Jámna.

Loc. 1) *Level of the Jámna* . . . . . 5,384 ft. Schl., Rob

7, Thermo-barom. 1855, Oct. 16, 2h P.M.

A. 202°·52 Fahr.; 70·5; 44. Mässúri 23·670; 64·2; 76. + 12 = 5,391 ft. Símla 23 265; 63·0; 56. + 17 = 5,376 ft

Close to the Jámna is a hot spring, which was then, however, entirely covered with the sand of the river.

Loc. 2) *Level of the Jámna at the bridge above Vódri* . . . . . 5,622 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 16, 10h A.M. Loc. corr. — 12 ft.

A. 202°·13 Fahr.; 55·4; 78. Mässúri 23·689; 63·5; 71 = 5,637 ft. Símla 23·260; 55 2; 59 5,607 ft

---

No. 299. RAKCHÁM PEAK, 31° 22′; 78° 20′, in Gărhvál, S. of the Báspa.

Loc. *Top of the peak* . . . . . 16,251 ft. G. T. S.

No. 300. DANGDÁNGSI PEAK (*T* ♁), 31° 26′·9′; 78° 19′·2 ♁, in Gărhvál-Kămáun, S. of the Ráldang peak . . . . . 19,639 ft. G. T. S.

Visible in the Kidarkánta panorama, but distant. Schl., Ad.

No. 301. KUTNÓR, 30° 51′; 78° 19′, in Gărhvál, left bank of the Jámna

Loc. *Hindu temple* . . . . . 5,106 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 17, 9h 30m A.M. *A.* 203°·05 Fahr.; 61·5; 43. Símla 23·276; 53 6; 55.

No. 302. Rári Peak, 31° 19′·8; 78° 18′·3 ♁, in Gärhvál. 19,044 ft. G. T. S.

Herbert and Hodgson call this peak "No. 46, or the Needle." It may be seen in the Kidarkánta panorama, distinctly emerging above the general crest. Schl., Ad

---

No. 303. Ussílla, or Oshól, 31° 7′·6; 78° 18′·2 ⊢, in Gärhvál, the highest village on the valley of the Tons, right bank of the river.

Loc. 1) *Level of the Tons at the upper bridge* . . . . . 8,513 ft. Schl., Ad.

6, Adic. 1855, Oct. 6, 2h P.M.

A. 22 016; 60 8. Símla 23·217; 66 4. — 29 = 8,519 ft. Massúri 23 607; 65 1. — 39 = 8,507 ft.

Loc. 2) *Upper houses of the village* . . . . . 8,940 ft. Schl., Ad.

„ *ditto* . . . . . 8,936 „ Herb. and Hodgs

427 ft. above the level of the Tons; by aneroid.

Nos. 304-5. Barabáti Peaks,

in Gärhvál, near the source of the Barabáti, an affluent of the Rupín.

No. 304. Barabáti South Peak Q ♁, 31° 20′·0; 78° 18′·2. 18,863 ft. G. T. S.

No. 305. Barabáti North Peak K ♁, 31° 21′·0; 78° 18′·2. 18,648 ft. G. T. S.

These peaks are not visible from the Jáko panorama. Schl., Herm.

No. 306. Rikikhés, 30° 6′; 78° 17′, in Garhval, on the Ganges, N.E. part of the Déra Dūn.

Loc. 1) *Temple* . . . . . 1,427 ft. Herb. and Hodgs.

„ 2) *Level of the Ganges* . . . . . 1,377 „ Herb. and Hodgs.

No. 307. Surkánda Mountain, 30° 24′; 78° 16′, in Gärhvál, E. of Mässúri, 16 miles in a direct line from Déra.

Loc. *Trigonometrical station* . . . . . 9,271 ft. Herb. and Hodgs.

„ *ditto* . . . . . 9,167 „ I. A. 48.

No. 308. Kapnól, 30° 17′; 78° 16′, in Gärhvál, S.E. of Barkót.

Loc. *Grove of trees* . . . . . 6,725 ft. Schl., Rob.

7, Thermo-barom 1855, Oct. 19, 9h A.M. A. 200′ 15 Fahr.; 59 5; 57 Símla 23 245; 51 3; 57.

No. 309. THÁNNO, 30° 50′; 78° 16′, in Gărhvál, right bank of the Jámna.

Loc. *Spring "Gángani páni", opposite Tháuno, on the left bank of the Jámna* . . . . . 4,097 ft Schl., Rob.

7, Thermo-barom. 1855, Oct. 17, 2h P.M. *A.* 204° 78 Fahr.; 70·9; 36. Símla 23·260; 63 3; 54. + 60 ft.

No. 310. SÁNGLA PEAK, 31° 24′; 78° 16′, in Gărhvál, S. of the Báspa.

Loc. *Top of the peak* . . . . . 13,193 ft. G. T. S

No. 311. DÁTMIR, 31° 5′; 78° 15′, in Gărhvál, on the left bank of the Tons, below Ussílla.

Loc. 1) *Level of the Tons* . . . . . 6,644 ft. Schl., Ad.

6, Adie. 1855, Oct. 10, 7h A.M. *A.* 23·595; 41 5; 58. Símla 23 237; 50 0; 68

Loc. 2) *Mean height of the village* . . . . . 8,354 ft. Herb and Hodgs

No. 312. BĂRKÓT, 30° 48′; 78° 14′, in Gárhvál, left bank of the Jámna.

Loc. *Hindu temple* . . . . . 4,140 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 18, 10h A.M. *A.* 204°·70; 61 5, 53. Símla 23 260; 53 8, 59

No. 313. NALGÚN PASS, 31° 19′; 78° 14′, in Gărhvál, E. of the Gunás pass.

Loc. *Top of the pass* . . . . . 14,891 ft. Ger.

No. 314. SÁNGLA, 31° 25′; 78° 14′, in Garhvál, on the right bank of the Báspa, an affluent of the Sátlej . . . . . 8,520 ft. Herb. and Hodgs

No. 315. GÓLDAR, 30° 52′; 78° 13′, in Garhvál, left bank of the Bonóld.

Loc. *Level of the Bonóld* . . . . . 4,065 ft. Schl., Ad.

6, Adie. 1855, Oct. 15, 7h A.M. *A.* 25·863; 49 6; 64. Símla 23 237; 50 9; 59. — 58 ft.

No. 316. RUPÍN PASS, 31° 21′; 78° 12′, in Símla-Kánáur, N.W. of the Gunás, and S.E. of the Buránda pass . . . . . 15,480 ft. Ger.

A depression in the ridge, corresponding to the position of the pass, is seen in the Kidarkánta panorama Schl., Ad.

No. 317. KÉSNU, 30° 49′; 78° 11′, in Gărhvál, near the left bank of the Jámna, but above its level.

Loc 1) *Mean height of the village* . . . . . 3,975 ft. Schl., Ad.

6, Adie. 1855, Oct. 15, 4h P.M.

A. 25·997; 64·0; 46. Símla 23·249; 64 8; 59. + 63 = 3,964 ft. Mássúri 23·662; 64 0, 71. + 53 = 3,986 ft.

Loc. 2) *Level of the Jámna at Rajtár bridge* . . . . . 3,865 ft. Schl., Ad.

6, Adie. 1855, Oct. 15, 9h A.M. *A.* 26 071; 60·4; 60. Símla 23·245; 54·5; 59.

No. 318. KÁNDA, 30° 54′; 78° 11′, in Gărhvál, situated in a lateral valley of the Bonóld.

Loc. *Source of the Kánda* . . . . . 5,030 ft. Schl., Ad.

6, Adie. 1855, Oct. 14, 3h P.M. *A.* 24·922; 61·3; 60. Símla 23·224; 65·3; 58. — 38 ft.

No. 319. GUNDEÁT, 31° 57′; 78° 11′, in Gărhvál, upper Ramsarái valley.

Loc. 1) *Level of the river* . . . . . 4,810 ft. Schl., Ad.

6, Adie. 1855, Oct. 14, 6h 20m A.M. *A.* 25·162; 47·8; 60. Símla 23 213; 51·1; 66. — 44 ft.

Loc. 2) *Gundeát, or Khálsi pass, leading to Kánda village* . 6,745 ft. Schl., Ad.

6, Adie. 1855, Oct. 14, 10h A.M.

A. 23 516; 60 4; 50. Símla 23·224; 56·1; 62 = 6,711 ft. Mässúri 23·674; 63·5; 72 = 6,778 ft.

No. 320. GORÁS PEAK (*B*), 31° 19′·9; 78° 10′·8, in Gărhvál, in the ridge between the Pábar and Rupín, near the Gunás pass . . . . . 16,509 ft. G. T. S.

No. 321. CHÁNDI, 29° 55′·4; 78° 10′·2, in Gărhvál, on the left bank of the Ganges, 2 miles S.E. of Hărdvár.

Loc. 1) *Foot of the hill* . . . . . 1,982 ft. G. T. S.

„ 2) *Top of the hill* . . . . . 2,013 „ G. T. S.

No. 322. HĂRDVÁR, 29° 57′·5; 78° 9′·5, in Gărhvál, on the right bank of the Ganges, E. of Sahárunpur.

Loc. *Level of the Ganges* . . . . . 1,024 ft. Herb. and Hodgs.

No. 323. KIDARKÁNTA, 31° 1′·4; 78° 9′·4, in Gărhvál, a peak commanding a fine view, in the ridge between the Tons and the Jámna.

Loc. 1) *Base of stone pillar* . . . . . 12,430 ft. Schl., Ad.

6, Adie. 1855, Oct. 11 and 12. *B* = Símla; *C* = Mässúri.

h m			
9 45 A.M.	*A.* 19 111; 40 1; 28.		*C.* 23·650; 64·4; 60 = 12,448 ft.
2 0 P.M.	„ 19 067; 45·0; 38.	*B.* 23·197; 64 9; 58. — 54 = 12,425 ft.	„ 23·595; 65·7; 58 = 12,430 „
5 30 „	„ 19·059; 36·1; 28.	„ 23 201; 62 2; 58. — 54 = 12,424 „	
4 0 „	„ 19 055; 41·2; 36.	„ 23·201, 64·8; 57. — 54 = 12,425 „	

From this point a panorama was drawn by Adolphe. See the panoramic profiles.

Loc. 2) *Top of the highest peak* . . . . . 12,518 ft. G. T. S.
„ *ditto* . . . . . 12,689 „ Herb. and Hodgs.
„ 3) *Upper limit of conifers* . . . . . 10,700 „ Schl., Ad.
= 1,730 ft. below the Kidarkánta peak; by aneroid.
„ 4) *Upper limit of oaks on the southern slopes of Kidarkánta towards Áur* . . . . . 11,442 ft. Schl., Ad.

6, Adie. 1855, Oct. 12, 4h 10m P.M. *A.* 19·772; 41·5. Kidarkánta 19·055; 41·2.

No. 324. MÚNGRA, 30° 48′; 78° 9′, in Gărhvál, on the left bank of the Jámna.

Loc. *Level of the Jámna* . . . . . 3,405 ft. Schl., Ad.

6, Adie. 1855, Oct. 16, 6h 20m A.M. *A.* 26·520; 48·6; 65. Símla 23·260; 49 8; 59. — 70 ft.

No. 325. ÁUR, 30° 59′; 78° 9′, in Gărhvál, near the Sarugárh, an affluent of the Tons.

Loc. 1) *Mean height of the village* . . . . . 6,785 ft. Schl., Ad.

6, Adie. 1855, Oct. 13, 7h 20m A.M. *A.* 23·450; 50·0; 60. Símla 23·217; 51·6; 66.

Loc. 2) *Áur pass, leading to the Ramsarái valley* . . . . . 6,246 ft. Schl., Ad.

6, Adie. 1855, Oct. 13, 10h A.M.
A. 23·918; 60·4; 42. Símla 23·201; 56·5; 64 = 6,212 ft. Mássúri 23·654; 64 0; 72 = 6,279 ft.

No. 326. KUMÁLLU DÁNDA PASS, 30° 42′; 78° 8′, in Gărhvál, N. of Mássúri, between Dháber and Zográu . . . . . 6,838 ft. Schl., Ad.

6, Adie. 1855, Oct. 17, 9h A.M. *A.* 23·450; 57·2; 60. Símla 23 261; 51·3; 55.

No. 327. GUNÁS PASS, 31° 21′; 78° 8′, in Gărhvál-Símla, near the Buránda, or Bruáng pass, leading from the Pábar to the Báspa valley.

Loc. *Top of the pass* . . . . . 15,459 ft. Herb. and Hodgs.
„ *ditto* . . . . . 16,067 „ J. A. Herbert.

No. 328. NÍBRANG PASS, 31° 20′; 78° 8′, in Gărhvál-Kănáur, between the Rupín and Buránda, or Bruáng pass . . . . . 16,035 ft. Ger.

No. 329. MASIRÁNI MOUNTAIN, 30° 26′; 78° 7′, in Gărhvál, S. of Mássúri.

Loc. *Hill Station* . . . . . 7,888 ft. Herb. and Hodgs.

No. 330. Jóger, 30° 39′; 78° 7′, in Gărhvál, about 10 miles E. of the Jámna.

Loc. *Mean height of the village* . . . . . 4,903 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 20, 9h 15m A.M. *A.* 203°·32 Fahr.; 59·5; 76. Símla 23·233; 51·3; 60.

No. 331. Buránda West Peak (*F* ☨), 31° 23′·9; 78° 6′·9, in Gărhvál-Kănáur, W. of the Buránda, or Bruáng pass . . . . . 16,890 ft. G. T. S.

No. 332. Gáichan, or Góichran, 31° 3′; 78° 6′, in Gărhvál, near the confluence of the Rupín and the Supín.

Loc. 1) *Level of the confluence* . . . . . ab. 5,300 ft. Herb. and Hodgs.

„ 2) *Mean height of the village* . . . . . 5,756 „ Herb. and Hodgs.

No. 333. Buránda, or Bruáng Pass, 31° 22′; 78° 6′, in Gărhvál-Kănáur, leading from the Pábar to the Báspa valley.

Loc. 1) *Top of the pass* . . . . . 15,296 ft. Herb. and Hodgs.

„ *ditto* . . . . . 15,095 „ Ger.

„ 2) *Source of the Pábar* . . . . . 12,914 „ Herb. and Hodgs

„ *ditto* . . . . . 13,839 „ Ger.

No. 334. Dógri Peak (μ ☨), 31° 27′·1′; 78° 5′·6, in Gărhvál-Kănáur, N.W. of the Buránda, and N.E. of the Shátul pass . . . . . 16,342 ft. G. T. S.

Not visible in the Jáko panorama. Schl., Herm.

No. 335. Pábar Peak (*A* ☨), 31° 24′·6; 78° 5′·4, in Gărhvál-Kănáur, near the source of the Pábar, W. of the Buránda pass . . . . . 16,843 ft. G. T. S.

No. 336. Nalapáni, or Kalínger Fort, 30° 20′·5; 78° 5′·0 ☨, in Gărhvál, N.N.E. of Dera, in the Déra Dún.

Loc. *Fort* . . . . . 3,286 ft. Herb. and Hodgs.

No. 337. Jónti Pass, 30° 36′; 78° 5′, in Gărhvál, N. of Mássúri.

Loc. 1) *Top of the south-western pass* . . . . . 6,882 ft. Schl., Ad.

6, Adie. 1855, Oct. 17, 4h P.M.

A. 23 410; 61·9; 41. Símla 23 249; 63·6; 58 = 6,863 ft. Mássúri 23·670; 64·4; 66 = 6,900 ft.

Loc. 2) *Top of the north-eastern pass* . . . . . 6,702 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 20, 11h A.M. *A.* 200° 13 Fahr.; 68·0; 42. Símla 23·220; 56 5; 55.

No. 338. KÓRI, 30° 35′; 78° 4′, in Gărhvál, N. of Măssúri.

Loc. *European bángalo* . . . . . 4,415 ft. Schl., Ad.

6, Adie. 1855, Oct. 18, $7^h\ 45^m$ A.M. *A.* 25·630; 53·2; 60. Símla 23·257; 50·4; 60. + 27 ft.

No. 339. NEVÁDA, 30° 15′; 78° 3′, in Gărhvál, S. of Déra, in the Déra Dūn.

Loc. *Mean height of the village* . . . . . 2,364 ft. Herb. and Hodgs.

No. 340. GRACEMOUNT, 30° 27′·6; 78° 3′·0 ✝, in Gărhvál, near the sanitarium of Măssúri.

Loc. 1) *Cistern of General Sir Andrew Waugh's barometer* . . 6,590 ft. G. T. S.

„ 2) *Cistern of the barometer at Mary Villa, near Gracemount* . . . . . 6,715 ft. G. T. S.

Dec. 8, 9^h A.M. *A.* 23·631; 46·6; 59. *B.* 23·739; 48·0; 66·0 = 6,716 ft. | *B* = Gracemount.
„ 9, 9 „ „ 23·618; 53·7; 67. „ 23·725; 53·4; 58·0 = 6,714 „ | Observer: Mr. Hennesser.

The following mountains and points in the environs of Măssúri, determined by the Great Trigonometrical Survey of India, were kindly communicated to us by General Sir Andrew Waugh.

A. MOUNTAINS.

Hatipám	7,109 ft.
Edge Hill . . .	7,070 „
Green Mount .	7,002 „
Laltípa	7,602 „
Eagle's Nest . .	7,041 „
Bellevue	7,125 „
Waverley. . . .	7,057 „

B. POINTS.

Himálaya Club House	6,849 ft.
Camel's Back	7,143 „
Mule Shed	6,562 „
Milner's Cottage . .	6,641 „
Newland's House . .	6,863 „
Cocley Hall	6,506 „
Camville	6,288 „

Măssúri Seminary	6,330 ft.
„ Bazár . .	6,719 „
„ Church .	6,777 „
Landáur Church .	7,369 „
„ Bazár . .	6,808 „
„ Hospital (Chimney)	7,511 „
Mallingárh	6,936 „
Woodstock	6,877 „

No. 341. DÚDA, 31° 11′; 78° 3′, in Símla, on the right bank of the Rupín.

Loc. *Mean height of the village* . . . . . 8,732 ft. Herb. and Hodgs.

No. 342. YÚSU PASS, 31° 24′; 78° 3′, in Gárhvál-Kănáur, between the Buránda and Shátul pass. . . . . 15,877 ft. Ger

---

No. 343. BUGDÁR GHĀT, 30° 30′; 78° 2′, in Gărhvál, a pass leading from the Bádri to the Aglár valley . . . . . 6,690 ft. Schl., Ad.

6, Adie. 1855, Oct. 18, 10h A.M.
A. 23·672; 64 0; 56. Símla 23·257; 54·9; 65 = 6,682 ft. Măssúri 23·662; 63·0; 59 = 6,697 ft.

No. 344. MASSRÁSSA, 30° 32′; 78° 2′, in Gărhvál, about 15 miles N. of Măssúri.

Loc. *Mean height of the village* . . . . . 4,677 ft. Schl., Rob.

7, Thermo-barom. 1855, Oct. 20, 5h P.M. *A.* 203°·55 Fahr.; 64·2; 63. Măssúri 23·564; 58·1; 17.

Loc. 2) *Level of the Aglár* . . . . . 2,657 ft. Schl., Ad.

6, Adie. 1855, Oct. 18, 4h P.M. *A.* 27·166; 72 0; 40. Símla 23·233; 62·6; 56. + 44 ft.

No. 345. JÁNGLIK, 31° 19′; 78° 2′, in Símla, near the right bank of the Pábar.

Loc. 1) *Mean height of the village* . . . . . 9,257 ft. Ger.

„ 2) *Junction of the Sípan and Pábar, S. of Jánglik* . . . 8,354 „ Ger.

No. 346. SHÁTUL PEAK (*M*′ ⏄) 31° 24′·6; 78° 1′·7 ⏄, in Gărhvál-Kănáur, E. of the Shátul pass . . . . . 17,269 ft. G. T. S.

Herbert and Hodgson, who mark this peak "*j*", obtain as its height 17,425 ft. Schl., Rob.

No. 347. DHOIVÁLA MOUNTAIN, 30° 7′·1; 78° 1′·1 ⏄, in Gărhvál, 18 miles N.W. of Hărdvár.

Loc. *Top of the mountain* . . . . . 3,064 ft. G. T. S.

„ *ditto* . . . . . 3,034 „ I. A. 48.

No. 348. DÉRA, 30° 18′·9; 78° 1′·0 ⏄, in Gărhvál, the principal place in the Déra Dūn.

Loc. 1) *Large temple* . . . . . 2,369 ft. Herb. and Hodgs.

„ *ditto* . . . . . 2,349 „ Ger.

„ 2) *Satis tank, W. of Déra* . . . . . 2,086 „ Herb. and Hodgs.

„ 3) *Dāk bángalo* . . . . . 2,240 „ Schl., Hărk.

6, Adie. 1857, Dec. 3, 10 A.M. *A.* 27 752; 58 4; 62. Símla 23·296; 45·0; 60 = 2,247 ft.
„ „ „ 4, 10 „ „ 27·819; 59·4; 54 „ 23 328; 41·7; 67 = 2,232 „

No. 349. BAMANVÁLA, 30° 17′; 78° 0′, in Gărhvál, near Déra, in the Déra Dūn.

Loc. *Temple* . . . . . 2,220 ft. Herb. and Hodgs.

No. 350. LINGVÁR, 31° 17′; 78° 0′, in Símla, near the right bank of the Pábar.

Loc. *Mean height of the village* . . . . . 8,759 ft. Ger.

No. 351. BANÓG HILL, 30° 28′·5; 77° 59′·9 ⏚, in Gărhvál, near the sanitarium of Măssúri.

Loc. 1) *Cistern of General Sir A. Waugh's barometer* . . . . . 7,549 ft. G. T. S.

„ 2) *Banóg Observatory* . . . . . 7,450 „ G. T. S.

This value (exactly 7,449·73) has been deduced by levels, brought up from sea by the Calcutta Meridional and North East Longitudinal Series, and verified by operations extending to Bombay.

Sir A. Waugh in manuscript map.

No. 352. DÚDHILI MOUNTAIN, 30° 28′; 77° 59′, in Gărhvál, W.S.W. of Măssúri.

Loc. *Top of the mountain* . . . . . 7,254 ft. Herb. and Hodgs.

No. 353. KANDIGHÁT MOUNTAIN, 31° 10′; 77° 59′, in Gărhvál, S. of the Chángsil mountain and N. of the Cháro mountain . . . . . 12,942 ft. G. T. S.

No. 354. CHÁNGSIL, or CHÁISELE MOUNTAIN, 31° 12′·9; 77° 58′·8 ⏚, in Símla-Kămáur, in the ridge between the Rupín and Pábar . . . . . 12,871 ft. Herb. and Hodgs.

It is seen as one of the ridges of the middle ground in the western part of the Kidarkánta panorama; in the Jáko panorama also the eastern limits of the view would reach far enough to include this mountain; but it seems not elevated enough to be recognised. Schl., Ad.

No. 355. TUNBÁRA, 30° 13′; 77° 58′, in Gărhvál, a village S.W. of Déra.

Loc. *Mean height of the village* . . . . . 1,932 ft. Jacq.

No. 356. JÁTVAR, 31° 15′; 77° 58′, in Símla, near the right bank of the Pábar.

Loc. *Mean height of the village* . . . . . 8,177 ft. Ger.

No. 357. SHÁTUL, or PÁNUI PASS, 31° 25′; 77° 58′, in Gărhvál-Kămáur, W. of the Buránda pass . . . . . 15,555 ft. Ger.

No. 358. BARIKÁNDA MOUNTAIN, 31° 31′; 77° 58′, in Símla, about 8 miles S. of the Sátlej, E. of Séran . . . . . 12,202 ft. G. T. S.

No. 359. Míta Béri, 30° 19′; 77° 57′, in Gărhvál, a few miles W. of Déra, in the Déra Dūn.

Loc. *Mean height of the village* . . . . . 2,189 ft. Herb. and Hodgs.

No. 360. Bhadráj, 30° 29′; 77° 57′, in Gărhvál, a peak 10 miles W. of Banóg hill.

Loc. *Top of the peak* . . . . . 7,510 ft. Herb. and Hodgs.

„ *ditto* . . . . . 7,409 „ I. A. 48.

No. 361. Cháuras, 31° 2′; 77° 57′, in Símla, W. of the Tons.

Loc. *Mean height of the village* . . . . . 6,568 ft. Herb. and Hodgs.

No. 362. Lal Darváza Pass, 30° 14′; 77° 56′, in Gărhvál, in the western parts of the Dun, S.W. of Déra.

Loc. *Top of the pass* . . . . . 2,935 ft. Herb. and Hodgs.

„ *ditto* . . . . . 2,728 „ Ger.

No. 363. Báirat Mountain, 30° 35′; 77° 56′, in Gărhvál, a peak 4 miles W. of the Jámna.

Loc. 1) *Fort on the top* . . . . . 7,599 ft. Herb. and Hodgs.

„ *ditto* . . . . . 7,497 „ I. A. 48.

„ 2) *Temple near Báirat* . . . . . 7,806 ft. Herb. and Hodgs.

No. 364. Lambatáj Mountain, 30° 1′; 77° 55′, in Gărhvál, N. of the Tons.

Loc. *Top of the mountain* . . . . . 10,485 ft. G. T. S.

No. 365. Kársva Peak (4 ⏄), 31° 25′·4; 77° 54′·8, in Símla, in the range between the Sátlej and the Pábar . . . . . 17,201 ft. G. T. S.

Herbert and Hodgson, who mark this peak "*d*", give as its height 17,174 ft. It is one of the least distant snow peaks in the Jáko panorama. Schl., Herm.

No. 366. Nanaspár, 31° 33′; 77° 54′, in Símla, 2 miles S. of the Sátlej.

Loc. *Hill Station* . . . . . 7,662 ft. G. T. S.

No. 367. Vángtu Bridge, 31° 37′; 77° 54′⊨, in Símla, on the confluence of the Vángar and the Sátlej.

Loc. *Level of the bridge* . . . . . 4,932 ft. Schl., Herm,

„ *ditto* . . . . . 5,250 „ Ger.

„ *ditto* . . . . . 5,289 „ J. A. Herbert.

1, Greiner. 1856, June 8, 6^{h} 15^{m} A.M *A.* 24·937; 57·9; 91. Símla 23·139; 64·4; 90. — 21 ft.

No. 368. RÚNEPU PEAK (5 ⛧), 31° 26′·3; 77° 53′·7 ⛧, in Símla-Kănáur, on the range between the Sátlej and the Pábar . . . . . 16,903 ft. G. T. S.

Herbert and Hodgson, who mark this peak "*a*", give as its height 17,044 ft.

No. 369. NÁCHAR, 31° 38′; 77° 53′, in Símla, on the left bank of the Sátlej, near the Vángtu bridge.

Loc. *Mean height of the village* . . . . . 5,250 ft. Ger.
„ *ditto* . . . . . 5,289 „ J. A. Herbert.

No. 370. CHIRGÁŬ, 31° 14′; 77° 52′, in Símla, near the confluence of the Pábar and Andríti.

Loc. 1) *Level of the confluence* . . . . . 5,607 ft. Herb. and Hodgs.
„ 2) *Undefined* . . . . . 5,985 „ Ger.
„ 3) *Tikrigáŭ* . . . . . 6,799 „ Ger.
„ 4) *Sánga (bridge of spars) over the Adríti, above Chirgáŭ* 6,080 „ Ger.

No. 371. TRÁNDA, or TARÁNDA, 31° 34′; 77° 49′, in Símla, near the left bank of the Sáildang, an affluent of the Sátlej, W. of the Vángtu bridge.

Loc. 1) *Mean height of the village* . . . . . 7,089 ft. Ger.
„ 2) *Level of the Sáildang at Tránda* . . . . . 5,849 „ Ger.

No. 372. HÁRIPUR, 30° 30′; 77° 48′, in Gărhvál, near the confluence of the Jánna and the Tons.

Loc. *Level of the confluence* . . . . . 1,686 ft. Herb. and Hodgs.

No. 373. SABHAVÁLA, 30° 22′; 77° 47′, in Gărhvál, western part of the Dera Dun, on the left bank of the Ásan nádi.

Loc. *Large tree* . . . . . 1,792 ft. Herb. and Hodgs.

No. 374. SAHÍNSPUR, 30° 23′; 77° 47′, in Gărhvál, on the right bank of the Ásan nádi, western part of the Déra Dūn.

Loc. *Mean height of the village* . . . . . 1,754 ft. Herb. and Hodgs.
„ *ditto* . . . . . 1,830 „ Ger.

No. 375. RONTÁN, 31° 7′; 77° 47′, in Símla, on the left bank of the Pábar, an affluent of the Tons.

Loc. *Mean height of the village* . . . . . 7,898 ft. Herb. and Hodgs.

No. 376. Bambhóra Gárh, 31° 14′; 77° 47′, in Símla, on a ridge between the Andríti and the Matréti.

Loc. *Fort* . . . . . 9,844 ft. Herb. and Hodgs.

No. 377. Séran, or Sárhan, 31° 30′·7; 77° 46′·8 ☩, in Símla, near the left bank of the Sátlej.

Loc. 1) *Staff near the Rájah's palace* . . . . . 7,115 ft. G. T. S.

„ 2) *Mean height of the village* . . . . . 6,906 „ Schl., Herm.

„ *ditto* . . . . . 7,248 „ Ger.

„ *ditto* . . . . . 7,246 „ J. A. Herbert.

1, Greiner. 1856, June 4, 8h A.M. *A.* 23·288; 55·4; 48. Símla 23·162; 63·0; 55.

No. 378. Ratáng Peak (*Sh.* ☩), 32° 1′·5; 77° 46′·4, in Kúlu, E. of the hot springs at Manikárn, on the right bank of the Párbáti . . . . . 21,365 ft. G. T. S.

Visible in the Jáko panorama. Schl., Herm.

No. 379. Kúntil Mountain, 30° 52′; 77° 46′, in Símla, W. of the Tons.

Loc. *Top of the mountain* . . . . . 9,065 ft. G. T. S.

No. 380. Gódar Deóta, 31° 10′; 77° 46′, in Símla, N.E. of Raiengárh.

Loc. *Temple* . . . . . 8,605 ft. Herb. and Hodgs.

No. 381. Róru, 31° 12′; 77° 46′, in Símla, near the right bank of the Pábar.

Loc. *Level of the Pábar* . . . . . 5,513 ft. Ger.

No. 382. Maráli Mountain, 31° 19′; 77° 46′, in Símla, E. of the Sátlej, and S.E. of Rámpur . . . . . 12,558 ft. G. T. S.

No. 383. Lung Mountain, 31° 32′; 77° 46′, in Símla, N.W. of Séran, or Sárhan.

Loc. *Top of the mountain* . . . . . 10,198 ft. G. T. S.

No. 384. Raiengárh, 31° 7′; 77° 44′, in Símla, on the left bank of the Pábar, an affluent of the Tons.

Loc. *Sánga (bridge of spars) over the Pábar* . . . . . 4,932 ft. Herb. and Hodgs.

No. 385. TÍKER, 31° 11′; 77° 39′, in Símla, S. of the Sátlej.

Loc. *Small fort* . . . . . 7,735 ft. Herb. and Hodgs.
„ *ditto* . . . . . 7,690 „ Ger.

No. 386. RÚRU, 31° 12′; 77° 44′, in Símla, on the right bank of the Pábar.

Loc. *Mean height of the village* . . . . . 5,601 ft. Herb. and Hodgs.

No. 387. BÁILA, 30° 45′; 77° 43′, in Gărhwál, on the Tons 6,318 ft. Herb. and Hodgs.

No. 388. KÚNZUM, or KÚLZUM PEAK (μ ♁), 32° 21′·3; 77° 42′·4, in Lahól-Spíti, S.E. of the pass of the same name, in the range between the Chándra and Spíti 20,581 ft. G. T. S.

No. 389. TÍMLI PASS, 30° 20′; 77° 42′, in Gărhwál, western parts of the Dĕra Dūn.

Loc. *Top of the pass* . . . . . 2,339 ft. Herb. and Hodgs.

No. 390. KÁNGRA MOUNTAIN, 30° 34′; 77° 42′, in Gărhwál, between the Tons and Jámna.

Loc. *Top of the mountain* . . . . . 6,600 ft. Herb. and Hodgs.

No. 391. PĂRBÁTI PEAK (I. ♁), 31° 51′·5; 77° 42′·0, in Kúlu-Lahól, near the source of the Părbáti, an affluent of the Biás . . . . . 20,515 ft. G. T. S.

Presents a steep, broad wall, as seen from Jáko. Schl., Herm.

No. 392. GÁURA, 31° 28′·6; 77° 41′·9 ♁, in Símla, 2 miles E. of the Sátlej, between Rámpur and Séran, or Sárhan.

Loc. *Mean height of the village* . . . . . 5,809 ft. Schl., Herm.

1, Greiner. 1856, June 3, 2h P.M.

A. 24·178; 55·2; 50. Símla 23·106; 64·4; 58. + 24 = 5,815 ft. Mássúri 23 500; 53 2; 91 = 5,802 ft.

Loc. 2) *Hill near Gáura* . . . . . 6,023 ft. G. T. S.
„ *ditto* . . . . . 6,042 „ J. A. Herbert.

No. 393. SÍKER MOUNTAIN, 31° 25′; 77° 41′, in Símla, 6 miles S.E. of Rámpur.

Loc. *Top of the mountain* . . . . . 10,136 ft. G. T. S.

Nos. 394-5. Súrcha Peaks, in Lahól-Spíti, S.E. of the Bára Lácha pass,

No. 394. Súrcha East Peak ($K^{IV.}$ ⏄), 32° 32′·7; 77° 40′·4 . . 19,981 ft. G. T. S.

No. 395. Súrcha West Peak ($K^{III.}$ ⏄), 32° 35′·5; 77° 37′·4 . . 20,073 ft. G. T. S.

No. 396. Baj Ghát, 30° 27′; 77° 40′, in Gărhvál, in the Déra Dún, on the confluence of the Gíri and Jámna.

Loc. *Level of the confluence* . . . . . 1,516 ft. Herb. and Hodgs.

„ *ditto* . . . . . 1,642 „ Ger.

No. 397. Chándpúr Mountain, 30° 42′; 77° 38′, in Símla, between the Tons and Gíri.

Loc. *Temple on the top* . . . . . 8,561 ft. Herb. and Hodgs.

No. 398. Kúnzum, or Kúlzum Pass, 32° 23′·7; 77° 37′·3′⏄, in Lahól-Spíti, in the range between the Chándra and Spíti.

Loc. *Top of the pass* . . . . . 14,931 ft. G. T. S.

No. 399. Rámpur, 31° 31′·0; 77° 37′·0⏄, in Símla, chief place of the hill-state of Bissér.

Loc. *Level of the Sátlej* . . . . . 2,912 ft. Schl., Herm.

„ *ditto* . . . . . 3,260 „ Ger.

1, Greiner. 1856, June 1, 6h 30m P.M. *A.* 26·552; 77·7; 38. Símla 23·024; 77·9; 34. Loc. corr. – 6 ft.

Loc. *Mean height of the town* . . . . . 3,398 ft. Ger.

„ *ditto* . . . . . 3,375 „ J. A. Herbert.

No. 400. Ghamén Mountain, 31° 33′; 77° 37′, in Kúlu, N. of Rámpur.

Loc. *Top of the mountain* . . . . . 11,729 ft. G. T. S.

No. 401. Túngru Mountain, 31° 8′; 77° 36′, in Símla, near the head of the Gíri.

Loc. *Top of the peak* . . . . . 10,102 ft. Herb. and Hodgs.

No. 402. Ramgárh, 31° 31′; 77° 35′, in Símla, near the right bank of the Sátlej, opposite Rámpur . . . . . 6,941 ft. Ger.

No. 403. Kándi, 31° 32′; 77° 35′, in Símla, near the right bank of the Sátlej, nearly opposite Rámpur . . . . . 7,599 ft. Ger.

No. 404. BÂDSHAH MAHÂL, 30° 19′; 77° 34′, in Gărhvâl, western parts of the Dĕra Dūn, on the left bank of the Jâmna.

Loc. *Level of the Jâmna* . . . . . 1,276 ft. Herb. and Hodgs.

No. 405. NIRT, 31° 22′; 77° 33′, in Símla, on a terrace at the left side of the Sâtlej.

Loc. 1) *Mean height of the village* . . . . . 2,725 ft. Schl., Herm.

„ *ditto* . . . . . 3,087 „ Ger.

„ *ditto* . . . . . 2,970 „ J. A. Herbert.

1, Greiner. 1856, June 1, 6h A.M. *A.* 26·867; 68·2; 70. Símla 23·075; 57·6; 68. — 43 ft.

„ 2) *Level of the Sâtlej* . . . . . 2,325 ft. Schl., Herm.

= 400 ft. below the village; by aneroid.

No. 406. SHÍGRI, 32° 16′; 77° 32′, in Lahól, E.S.E. of Kóksar.

Loc. 1) *Foot of the small glacier* . . . . . 12,730 ft. Schl., Hark

11, Pistor. 1857, July 31, 10h A.M. *B* = Símla; *C* = Mŭssúri.

A. 18·784; 44·6; 13. *B.* 23·056; 66·2; 31·1 = 12,731 ft. *C.* 23·450; 65·5; 30·5 = 12,729 ft.

Loc. 2) *Foot of the large glacier* . . . . . 12,697 ft. Schl., Hărk.

11, Pistor. 1857, Aug. 1, 10h A.M. *A.* 18·823; 52·4; 45. Símla 23·048; 62·8; 98.

Nos. 407-13. SHÍGRI PEAKS,

in Lahól, in the range bordering the right bank of the Chándra in its upper course.

No. 407. SHÍGRI PEAK $L^{III.}$ ♁, 32° 22′·4; 77° 33′·2 . . . . . 19,949 ft. G. T. S.

No. 408. SHÍGRI PEAK $L^{II.}$ ♁, 32° 21′·1; 77° 32′·5 . . . . . 20,566 ft. G. T. S.

No. 409. SHÍGRI PEAK $L^{VI.}$ ♁, 32° 22′·4; 77° 28′·7 . . . . . 19,839 ft. G. T. S.

No. 410. SHÍGRI PEAK $L^{V.}$ ♁, 32° 26′·9; 77° 27′·9 . . . . . 20,442 ft. G. T. S.

No. 411. SHÍGRI PEAK $L^{VI.}$ ♁, 32° 32′·8; 77° 23′·9 . . . . . 21,415 ft. G. T. S.

No. 412. SHÍGRI PEAK $L^{VII.}$ ♁, 32° 38′·4; 77° 22′·7 . . . . . 20,561 ft. G. T. S.

No. 413. SHÍGRI PEAK x ♁, 32° 42′·7; 77° 15′·6 . . . . . 18,424 ft. G. T. S.

No. 414. SHÁNCHA PEAK ($c\dagger$), 31° 43′·7; 77°·30′·8†, in Kúlu, S.E. of the Biás.

Loc. *Top of the peak* . . . . . 15,602 ft. G. T. S.

No. 415. JÁMU MOUNTAIN, 30° 37′; 77° 29′, in Gărhvál, on the left bank of the Gíri, an affluent of the Jámna, at Raj ghāt . . . . . 6,852 ft. Herb. and Hodgs.

No. 416. HÁTTU MOUNTAIN, 31° 14′; 77° 29′, in Símla, N.E. of Símla, and S. of Kotgárh.

Loc. *Top of the mountain* . . . . . 10,469 ft. G. T. S.

„ *ditto* . . . . . 10,673 „ Herb. and Hodgs.

„ *ditto* . . . . . 10,684 „ Ger.

No. 417. JÁUDHPUR, 31° 19′; 77° 29′, in Símla, near Kotgárh.

Loc. *Stockade* . . . . . 6,771 ft. Herb. and Hodgs.

No. 418. NUNUKÁNDU MOUNTAIN, 31° 26′; 77° 29′, in Kúlu, N. of the Sátlej, and W. of Rámpur.

Loc. *Top of the mountain* . . . . . 10,335 ft. G. T. S.

„ *ditto* . . . . . 10,744 „ Herb. and Hodgs.

„ *ditto* . . . . . 10,455 „ Ger.

No. 419. PAUKÁRI, *H. S.*, 31° 37′; 77° 29′, in Kúlu . . 11,309 ft. G. T. S.

No. 420. KOTGÁRH, 31° 19′; 77° 28′, in Símla, a missionary station near the south bank of the Sátlej.

Loc. 1) *Rev. J. Procknow's bángalo* . . . . . 6,412 ft. Schl., Herm.

1, Greiner. 1856, May 31, 9h 30m A.M. *A.* 23·626; 61·2; 75. Símla 23·087; 61·5; 66.

„ 2) *Former Cantonment* . . . . . 6,918 ft. Herb. and Hodgs.

„ 3) *Undefined* . . . . . 6,634 „ Ger.

„ *ditto* . . . . . 6,603 „ J. A. Herbert.

No. 421. CHUÁSI, 31° 25′; 77° 28′, in Símla, right bank of the Sátlej.

Loc. *Fort* . . . . . 8,559 ft. Ger.

No. 422. △ DANGMÓGHE, 32° 17′; 77° 28′, in Lahól, E.S.E. of Kóksar.

Loc. *Encamping ground* . . . . . 12,429 ft. Schl., Hark.

11, Pistor. 1857, July 29, 6h P.M. *A.* 19·001; 48·6; 27. Símla 23·048; 66·4; 94.

No. 423. CHŪR PEÁK, 30° 52′·3; 77°·27′·9 ✝, in Símla, S.E. of the sanitarium of Símla.

Loc. *Top of the peak* . . . . . 11,982 ft. G. T. S.

„ *ditto* . . . . . 12,149 „ Herb: and Hodgs.

This peak was one of the principal stations for Hodgson and Herbert's trigonometrical operations in Gărhvál and Kămáon (see p. 9).

No. 424. NAGKÁNDA, 31° 14′; 77° 27′, in Símla, S. of Kotgárh.

Loc. *Dāk bángalo, and top of the pass* . . . . . 8,831 ft. Schl., Rob.

„ *ditto* . . . . . 9,016 „ Ger.

„ *ditto* . . . . . 8,676 „ Russ.

1, Greiner. 1856, May 30, 4h 30m P.M.

4. 21·587; 57·4; 54 Símla 23·013; 74·8; 46. — 36 = 8,832 ft. Mássúri 23 414; 66 2; 77. — 45 = 8,829 ft.

No. 425. KOMHÁRSEN, 31° 20′; 77° 26′, in Símla, near the left bank of the Sátlej.

Loc. 1) *Level of the Sátlej* . . . . . 2,345 ft. Schl., Ad.

6, Adie. 1856, May 31, 9h A.M. *A*. 27·178; 78·1; 49. Símla 23·083; 60 8; 66. Loc. corr. = 45 ft.

Loc. 2) *Mean height of the village* . . . . . 5,784 ft. Herb. and Hodgs.

„ *ditto* . . . . . 5,279 „ J. A. Herbert.

No. 426. JARÉRA, 31° 13′; 77° 26′, in Símla, near the southern foot of the Nagkánda pass.

Loc. 1) *Mean height of the village* . . . . . 8,173 ft. Ger.

„ 2) *Jimu village, S. of Jaréra* . . . . . 7,375 „ Ger.

No. 427. KÓT, 31° 31′; 77° 26′, in Kúlu, S.E. of the Jalóri pass.

Loc. *Upper houses of the village* . . . . . 7,678 ft. Schl., Ad.

6, Adie. 1856, June 1. 12h Noon. *A*. 22·575; 73 4; 37. Símla 23 071; 71·8; 43.

No. 428. BÁRA LÁCHA PASS, 32° 43′·5; 77° 25′·3 ✝, in Lahól-Spíti, leading over to Ladák.

Loc. 1) *Top of the pass* . . . . . 16,186 ft. Schl., Rob.

„ *ditto* . . . . . 16,505 „ Mac.

„ *ditto* . . . . . 16,500 „ Cunning.

8, Pistor. 1856, June 19, 10h A.M. *B* = Mássúri; *C* = Símla.

A. 16·564; 40·6; 18. *B*. 23·454; 65·7; 77 = 16,173 ft. *C*. 23·087; 64 8; 78 = 16,198 ft.

„ 2) *Trigonometrical staff* . . . . . 16,221 ft. G. T. S.

Loc. 3) *Námtso, a small lake on the southern slopes of the Bára Lácha pass* . . . . . 15,570 ft. Schl., Rob.

8, Pistor. 1856, June 19, 9h A.M. *B* = Símla; *C* = Mássúri.
A. 16·842; 30·9; 0. *B*. 23·044; 62·2; 81 = 15,552 ft. *C*. 23·446; 64·4; 74 = 15,587 ft.

„ 4) *Upper limit of grass vegetation, on the southern slopes of the Bára Lácha pass* . . . . . 16,130 ft. Schl., Rob.
= 1,560 ft. above the lake Námtso; by aneroid.

„ 5) △ *Chála, on the northern slopes of the Bára Lácha pass* 15,273 ft. Schl., Rob.

8, Pistor. 1856, June 20, 6h A.M. *B* = Símla; *C* = Mássúri.
A. 17·068; 26·2; 0. *B*. 23·099; 58·1; 85. + 81 = 15,263 ft. *C*. 23·489; 60·8; 86. + 86 = 15,283 ft.

Loc. 6) *Level of the Chála river at* △ *Chála* . . . . . 15,012 ft. Schl., Rob.
= 261 ft. below △ Chála; by aneroid.

No. 429. SHI MOUNTAIN, 30° 51′; 77° 25′, in Símla, W. of the Chúr peak.

Loc. *Top of the mountain* . . . . . 9,731 ft. G. T. S.

No. 430. SRIGÁRH, 31° 24′; 77° 25′, in Símla, near the right bank of the Sátlej.

Loc. *Fort* . . . . . 8,424 ft. Herb. and Hodgs.

„ *ditto* . . . . . 8,381 „ Ger.

No. 431. MATTIÁNA, 31° 11′; 77° 24′, in Símla, N.E. of Símla.

Loc. 1) *Dak bángalo* . . . . . 8,027 ft. Russ.

„ 2) *Mean height of the village* . . . . . 7,224 „ Ger.

No. 432. DEOTÍBA PEAK, 32° 12′·9; 77° 23′·0 ☥, in Kúlu, in the northern parts of the range separating the Biás and Pärbäti valley . . . . . 20,417 ft. G. T. S.

A broad massiv with a well defined pyramidal top; it forms the western corner of the principal range in the Jáko panorama. Schl., Herm.

No. 433. MANIKÁRN, 32° 2′; 77° 22′, in Kúlu, right bank of the Pärbáti, an affluent of the Biás.

Loc. *Hot spring* . . . . . 5,587 ft. G. T. S.

No. 434. RÁGUPUR, 31° 32′; 77° 22′, in Kúlu, E. of the Jalóri pass.

Loc. *Fort* . . . . . 10,855 ft. Ger.

No. 435. THÁNDU BHOVÁNI, 30° 37′; 77° 21′, in Símla, N. of Jaitók fort.

Loc. *Temple* . . . . . 5,700 ft. Herb. and Hodgs.

No. 436. THEÓG, 31° 6′; 77° 21′, in Símla, E. of Símla.

Loc. *Temple* . . . . . 8,018 ft. Ger.

No. 437. PLACH, 31° 39′; 77° 21′, in Kúlu, on the right bank of the Trítan, an affluent of the Biás.

Loc. *Mean height of the village* . . . . . 4,228 ft. Schl., Ad.

6, Adie. 1856, June 2, 10^{h} A.M. *A.* 25·508; 73·0; 47. Mássúri 23·489; 67·5; 96.

No. 438. △ CHINGCHINGBÁR, 32° 43′; 77° 21′, in Lahól, on the left bank of the Bhága, W. of the Bára Lácha pass.

Loc. *Encamping ground* . . . . . 13,355 ft. Schl., Rob.

5, Adie, 1856, June 18, 6^{h} P.M. *A.* 18·264, 40·3; 26. Mássúri 23·371; 62·4; 71.

No. 439. KASÁL MOUNTAIN, 31° 50′; 77° 20′, in Kúlu, S.E. of Sultánpur.

Loc. *Top of the mountain* . . . . . 11,795 ft. G. T. S.

No. 440. JAITÓK, 30° 35′; 77° 19′, in Símla, N. of Nahán.

Loc. *Fort on the top of the mountain* . . . . . 4,854 ft. Herb. and Hodgs.

„ *ditto* . . . . . 5,083 „ Ger.

No. 441. FÁGU, 31° 5′; 77° 19′, in Símla, about 15 miles E. of Símla.

Loc. *Dák bángalo* . . . . . 8,053 ft. Schl., Rob.

1, Greiner. 1856, May 29, 1^{h} 30^{m} P.M.

A. 22·248; 63·0; 63. Símla 23·056; 69·8; 53. — 20 = 8,049 ft. Mássúri 23·450; 71·1; 70. — 29 = 8,057 ft.

No. 442. CHITIRÁUN MOUNTAIN, 30° 49′; 77° 18′, in Símla, on the right bank of the Gíri, an affluent of the Jámna at Raj ghāt . . . . . 7,048 ft. Herb. and Hodgs.

No. 443. NAHÁN, 30° 33′; 77° 16′, in Símla, on the Siválik Hills, outer ranges of the Himálaya.

Loc. *Temple* . . . . . 3,207 ft. Herb. and Hodgs.

„ *ditto* . . . . . 3,180 „ Ger.

No. 444. MÁGRU, 31° 33′; 77° 16′, in Kúlu, W. of Rámpur.

Loc. *Fort* . . . . . 9,567 ft. Ger.

„ *ditto* . . . . . 6,168 „ I. A. 47.

There seems to be a misprint of the height in the Indian Atlas (first edition of sheet No. 47).

No. 445. GIRÁULI PEAK, 31° 54′; 77° 16′, in Kúlu, E.S.E. of Sultánpur.

Loc. *Top of the peak* . . . . . 12,070 ft. G. T. S.

No. 446. SHÁLI MOUNTAIN, 31° 11′·5; 77° 15′·6, in Símla, N.E. of Símla, and S. of the Sátlej.

Loc. *Top of the mountain* . . . . . 9,420 ft. G. T. S.

„ *ditto* . . . . . 9,623 „ Herb. and Hodgs.

No. 447. CHÍJERA MOUNTAIN, 31° 26′; 77° 15′, in Kúlu, E.S.E. of Banérd.

Loc. *Top of the mountain* . . . . . 10,263 ft. G. T. S.

No. 448. RÚNGUL MOUNTAIN, 31° 46′; 77° 15′, in Kúlu, 2 miles E. of the Biás.

Loc. *Top of the mountain* . . . . . 9,067 ft. G. T. S.

No. 449. △ TIMTÍMNA, 32° 23′; 77° 15′, in Lahól, E. of Kóksar, on the Bhága.

Loc. 1) *Encamping ground* . . . . . 10,389 ft. Schl., Härk.

11, Pistor. 1857, July 27, 12h Noon. *A.* 20·501; 71·4; 61. Símla 23·067; 66·7; 93. — 33 ft.

Loc. 2) △ *Chamchúe, E. of* △ *Timtímna* . . . . . 10,635 ft. Schl., Härk.

11, Pistor. 1857, July 28, 6h A.M. *A.* 20·284; 51·4; 22. Símla 23·044; 61·9; 98. + 35 ft.

„ 3) *Foot of a glacier between* △ *Chamchúe and* △ *Dangmóche* . . . . . 11,430 ft. Schl., Härk.

11, Pistor. 1857, July 28, 11h A.M. *B* = Símla; *C* = Massúri.

A. 19·776; 64·1; 34. *B.* 23·060; 66·9; 94 = 11,412 ft. *C.* 23·469; 67·5; 92 = 11,447 ft.

No. 450. △ PATSÉO, 32° 43′; 77° 15′, in Lahól, on the left bank of the Bhága, W. of the Bára Lácha pass.

Loc. *Encamping ground* . . . . . 12,325 ft. Schl., Rob.

5, Adie. 1856, June 18, 6h A.M. *A.* 18·977; 35·2; 61. Símla 22·945; 59·0; 67. + 103 ft.

No. 451. BONÍTI DÉVI, 30° 38′; 77° 14′, in Símla, N.W. of Jaitók fort.

Loc. *Temple* . . . . . 5,129 ft. Herb. and Hodgs.

No. 452. MAHÁSSU, 31° 7′; 77° 14′, in Símla, E. of Símla.

Loc. *Tank near Mahássu* . . . . . 8,277 ft. Ger.

No. 453. SARDÁUNI MOUNTAIN, 32° 7′; 77° 14′, in Kúlu, E. of the Biás, and 6 miles E.N.E. of Nágger . . . . . 12,757 ft. G. T. S.

No. 454. ROTÁNG PASS, 32° 22′; 77° 14′, in Kúlu-Lahól, a remarkable depression much lower than the ridge in which it occurs.

Loc. 1) *Top of the pass* . . . . . 13,061 ft. Schl., Rob.

„ *ditto* . . . . . 13,000 „ M. and T.

6, Adie. 1856, June 9, 12h 45m P.M.

A. 18·666; 47·1; 89. Símla 23·158; 67·8; 71 = 13,068 ft. Mássúri 23·528; 68 7; 83 13,053 ft.

The depression is well marked in the Jáko panorama, though the pass itself is not visible.

Loc. 2) △ *Marri, on the southern slopes of the Rotáng pass* 10,769 ft. Schl., Rob.

6, Adie. 1856, June 9, 8h A.M. *A.* 16·335; 48·0; 61. Símla 23 174; 63 5; 74

No 455. GÁPHAN PEAK, 32° 28′·7; 77° 13′·3 ☩, in Lahól, N. of Kóksar, a village on the left bank of the Chándra . . . . . 19,212 ft. G. T. S.

No. 456. BÁGRA, 31° 29′; 77° 13′, in Kúlu, W. of Rámpur on the Sátlej.

Loc. *Fort* . . . . . 10,474 ft. Herb. and Hodgs.

„ *ditto* . . . . . 10,490 „ Ger.

No. 457. RUMÉTU MOUNTAIN, 32° 3′; 77° 13′, in Kúlu, E. of the Biás, and S.S.E. of Nágger . . . . . 12,084 ft. G. T. S.

No. 458. JĂGATSÚK, 32° 12′; 77° 13′, in Kúlu, near the left bank of the Biás, N. of Nágger.

Loc. *Mean height of the village* . . . . . 6,080 ft. Schl., Ad.

6, Adie. 1856, June 8, 6h A.M. *A.* 23·961; 60·8; 79. Símla 23·139; 63·9; 92.

No. 459. △RÁLHA, 32° 18′; 77° 13′, in Kúlu, N. of Bihísht, and S. of the Rotáng pass.

Loc. *Encamping ground* . . . . . 8,693 ft. Schl., Rob.

6, Adie. 1856, June 9, 6h A.M. *A.* 21·863; 52·2; 77. Símla 23 166; 57·7; 82. + 31 ft.

No. 460. SÁRSU DÉVI, 30° 51′; 77° 12′, in Símla, near the Gíri.

Loc. *Temple* . . . . . 6,299 ft. I. A. 47.

No. 461. GATIÁR MOUNTAIN, 31° 38′; 77° 12′, in Kúlu, S. of the Biás, and W. of Plach.

Loc. *Top of the mountain* . . . . . 9,651 ft. G. T. S.

No. 462. BÁDUL, 31° 49′; 77° 12′, in Kúlu, left bank of the Biás.

Loc. *Level of the Biás* . . . . . 3,275 ft. Schl., Ad.

6, Adie. 1856, June 3, 5^{h} P.M. *A.* 26·355; 78 1; 32. Mássúri 23·481; 55·4; 88. — 33 ft.

No. 463. KRÍNGCHA MOUNTAIN, 32° 1′; 77° 12′, in Kúlu, in the ridge between the Biás and the Párbáti . . . . . 11,433 ft. G. T. S.

No. 464. KÓKSAR, 32° 25′; 77° 12′, in Lahól, on the right bank of the Chándra, N. of the Rotáng pass.

Loc. 1) *Lower part of the village* . . . . . 10,344 ft. Schl., Rob.

6, Adie. 1856, June 19, 9^{h} A.M. *A.* 20·587; 60·1; 62. Símla 23·135; 66·4; 70 = 10,347 ft.

„ „ „ „ 5 P.M. „ 20·545; 61 5; 40. Mássúri 23·461; 66·2; 94 = 10,340 „

„ 2) *Upper part of the village* . . . . . 10,675 ft. Cunning.

No. 465. JÁKO MOUNTAIN, 31° 5′·9; 77° 11′·0 ⊢, in Símla, near the sanitarium of Símla.

Loc. *Top of the mountain* . . . . . 8,120 ft. Herb. and Hodgs.

„ *ditto* . . . . . 8,194 „ Ger.

No. 466. SHIKÁRI DÉVI MOUNTAIN, 31° 28′; 77° 11′, in Kúlu, E.S.E. of Súket.

Loc. *Top of the mountain* . . . . . 11,060 ft. G. T. S.

No. 467. BIHÍSHT, 32° 17′; 77° 10′, in Kúlu, in the Biás valley, N. of Nággér.

Loc. *Hot springs* . . . . . 6,622 ft. Schl., Ad.

6, Adie. 1856, June 8, 1^{h} P.M. *A.* 23·469; 78·8; 37. Símla 23·119; 78·1; 58.

No. 468. SÍMLA, 31° 6′·2; 77° 9′·4 ⊹, (referred to the church) in Símla, the well known sanitarium, 40 miles distant from the southern foot of the Himálaya.

Loc. 1) *Entrance to the church* . . . . . 7,156 ft. G. T. S.

Loc. 2) *Entrance to Aln Cottage, a house near Anderson's magazine. Aln Cottage was inhabited by us during our stay in Símla (April and May,* 1856) . . . . . 7,026 ft. Schl., Herm.

By levellings, the entrance to the cottage was found to be 130 ft. below the entrance of the church.

Loc. 3) *Entrance to the Gov. School and cistern of the barometer* 7,057 ft. Schl., Rob.

1856, at 10^h A.M.
Observers: at Aln Cottage, Robert; at Gov. School, Radhakíshen.

Date.	Gov. School.	Aln Cottage.	Height.
May 20	23·201; 72·9	23·225; 73·4	7,058
„ 21	23·249; 74·7	23·276; 76·6	7,059
„ 22	23·229; 77·9	23·252; 80·2	7,055
„ 23	23·134; 71·6	23·162; 72·3	7,062
„ 24	23·142; 69·3	23·166; 70·5	7,056
„ 26	23·091; 67·5	23·115; 68·3	7,058
„ 27	23·115; 67·1	23·138; 68·0	7,054
„ 29	23·091; 70·2	23·119; 71·2	7,051

Loc. 4) *Compound of the Pavilion Hôtel, near the church* . . 7,109 ft. Schl., Herm.

By levellings, the compound was found to be 47 ft. below the entrance of the church.

Loc. 5) *Compound of General Boileau's Observatory* . . . . . 7,092 ft. Schl., Rob.
(31° 6′·1; 77° 7′·6 ♁)
ditto . . . . . 7,084 „ G. T. S.

1856. *B* = Aln Cottage.

May 14, 10^h A.M.	*A.* 23·150; 69·8	*B.* 23·205; 70 5.	7,094 ft.
„ „ 4 P.M.	„ 23 079; 55·0	„ 23·131; 55·4.	7,088 „
„ 15, 10 A.M.	„ 23·048; 52·5	„ 23·103; 53·2.	7,091 „
„ „ 4 P.M.	„ 23·134; 64·8	„ 23·189; 65·8.	7,093 „

No. 469. RAJGÁRH, 30° 53′; 77° 9′, in Símla, E. of Dăgsháí.

Loc. *Fort* . . . . . 7,175 ft. Herb. and Hodgs.

No. 470. BÍJLI MOUNTAIN, 31° 55′; 77° 9′, in Kúlu, 3 miles N. of the confluence of the Părbáti and the Biás . . . . . 8,076 ft. G. T. S.

No. 471. NÁGGER, 32° 6′·8; 77° 9′·0 ♁, in Kúlu, near the left bank of the Biás.

Loc. *Major Hay's bángalo* . . . . . 5,777 ft. Schl., Rob.
ditto . . . . . 5,780 „ G. T. S.

6, Adie. 1856, June 7. *A.* 24·221; 78·1; 35. Símla 23·150; 72·9; 71. + 26 = 5,773 ft.

For the final result, we take the mean of our observations and the value of the G. T. S.

No. 472. HÁJURU MOUNTAIN, 32° 11′; 77° 9′, in Kúlu, about 8 miles W. of the Biás in its upper course . . . . . 12,562 ft. G. T. S.

No. 473. KÁRDONG PEAK ($P\dagger$), 32° 33′·1; 77° 8′·8, in Lahól, E. of Kárdong, the chief place of this province . . . . . 18,942 ft. G. T. S.

No. 474. SÚNI, 31° 15′; 77° 8′, in Símla, on the left bank of the Sátlej, N. of Símla.

Loc. 1) *Level of the hot springs and the Sátlej* . . . . . 2,127 ft. Schl., Rob.

4, Adie. 1856, April 7. *B* = Ágra; *C* = Aligárh.

h m
9 0 A.M. *A.* 27·827; 76·1; 24. *B.* 29 237; 91·8; 25 = 2,103 ft. *C.* 29·140; 90·5; 36 = 2,105 ft.
10 30 „ „ 27·800; 89·4, 21. „ 29·217; 97·2; 17 = 2,139 „ „ 29·143; 94·7; 32 = 2,162 „

Loc. 2) *Mean height of the village of Súni* . . . . . 2,318 ft. Schl., Rob.

4, Adie. 1856, April 7, 2h 30m P.M. *B* = Ágra; *C* = Aligárh; *D* = Ambála.
A. 27 544; 93 0; 6. *B.* 29·130; 102·9; 12. — 33 = 2,309 ft. *C.* 29·075; 100 8; 26. — 32 = 2,353 ft.
D. 28·756; 99·1; 4. — 25 = 2,292 ft.

No. 475. KÓKAN MOUNTAIN, 31° 51′; 77° 8′, in Kúlu, 3 miles W. of the Biás, S. of Sultánpur . . . . . 8,520 ft. Mulh.

No. 476. BHURS MOUNTAIN, 30° 45′; 77° 7′, in Símla, N.W. of Naháu.

Loc. *Top of the mountain* . . . . . 6,439 ft. Herb. and Hodgs.

No. 477. BARAGÁRH MOUNTAIN, 32° 7′; 77° 7′, in Kúlu, W. of Nágger.

Loc. *Top of the mountain* . . . . . 10,060 ft. G. T. S.

No. 478. KRÓL MOUNTAIN, 30° 56′; 77° 6′, in Símla, E.S.E. of Sabáthu.

Loc. *Top of the mountain* . . . . . 7,612 ft. Herb. and Hodgs.

No. 479. CHÉRU MOUNTAIN, 31° 27′; 77° 6′, in Kúlu, S.E. of Banérd.

Loc. *Top of the mountain* . . . . . 10,134 ft. G. T. S.

No. 480. SIRTÍBA MOUNTAIN, 31° 44′; 77° 6′, in Kúlu, N. of the Biás.

Loc. *Top of the mountain* . . . . . 9,333 ft. Mulh.

No. 481. GÚNDLA, 32° 27′; 77° 6′, in Lahól, on the right bank of the Chándra.

Loc. *Mean height of the village* . . . . . 10,154 ft. Schl., Rob.

„ *ditto* . . . . . 10,387 „ Cunning.

6, Adie. 1856, June 12, 6h A.M. *A.* 20·646; 48·7; 85. Símla 23·044; 58·5; 94. + 60 ft.

No. 482. SULTÁNPUR, 31° 57′·8; 77° 5′·8, in Kúlu, the capital of that province, on the right bank of the Biás.

Loc. 1) *Entrance to the late Rájah's residence* . . . . . 3,945 ft. Schl., Ad.

13, Newman. 1856, June 5, 9 A.M. *A.* 25·899; 65·8; 74. Mássúri 23 595; 64 8; 72 - 3,915 ft.

„ „ „ „ 10 „ „ 25·887; 73 0; 60. „ 23·599; 65·3; 79 - 3,945 „

Loc. 2) *Level of the Biás at Sultánpur* . . . . . 3,830 ft. Schl., Ad

Trigonometrically measured.

Loc. 3) *Staff in the town* . . . . . 4,092 ft. G. T. S.

„ 4) *Devankhána Dome* . . . . . 4,043 „ Mulh.

No. 483. JÁITHIA DÉVI, 31° 5′; 77° 5′, in Símla, W. of Símla.

Loc. *Temple* . . . . . 5,031 ft. Herb and Hodgs.

„ *ditto* . . . . . 4,971 „ Ger.

No. 484. MÓRNI, 30° 41′; 77° 4′, in Símla, N.E. of Ambála.

Loc. *Mean height of the village* . . . . . 2,413 ft. Herb. and Hodgs

No. 485. MADÁNPUR MOUNTAIN, 31° 50′; 77° 4′, in Kúlu, S. of Sultánpur, and N.N.E. of Mándi . . . . . 9,147 ft. G. T. S.

No. 486. KÓLUNG, 32° 39′; 77° 4′, in Lahól, on the right bank of the Bhága, above Kárdong.

Loc. 1) *Old fort* . . . . . 11,622 ft. Schl., Rob.

6, Adie. 1856, June 15, 6h P.M. *A.* 19·607; 62·6; 29. Símla 23 036; 68·9; 83.

„ 2) *Dárche, above Kólung* . . . . . 11,746 ft. Schl, Rob.

= 124 ft. above Kólung; by aneroid.

This is the highest village in the Bhága valley, just at the limit of cultivation. (See No. 491.)

No. 487. SHÁLONG, 32° 0′; 77° 3′, in Kúlu, N.W. of Sultánpur, the capital of this province.

Loc. *Mean height of the village* . . . . . 5,798 ft. Schl., Ad

11, Pistor. 1857, May 12, 1h P.M. *A.* 24 182; 67 6; 42. Mássúri 23·520; 75·2; 40.

No. 488. Síssu Peak (M ⏄), 32° 26′·0; 77° 2′·4, in Lahól, W. of Síssu, a village on the right bank of the Chándra . . . . . 20,355 ft. G. T. S.

No. 489. Dágshái, 30° 53′·1; 77° 2′·2 ⏄, in Símla, a military station, S.S.W. of Símla.
Loc. *Cantonment* . . . . . 6,025 ft. G. T. S.

No. 490. Hátipur Mountain, 31° 53′; 77° 2′, in Kúlu, S.S.W. of Sultánpur.
Loc. *Top of the mountain* . . . . . 10,614 ft. Mulh.

No. 491. Kvárding, 32° 38′; 77° 2′, in Lahól, N. of Kárdong, the capital of this province.
Loc. 1) *Mean height of the village* . . . . . 11,489 ft. Schl., Rob.
6, Adie. 1856, June 15, 10^h A.M. *A.* 19·697; 60·1; 64. Símla 23·056; 64·4; 90.
Loc. 2) *Upper limit of cultivation of grain in the Bhága valley* 11,720 ft. Schl., Rob.
— 231 ft. above Kvárding; by aneroid.

No. 492. Shínku La Pass, 32° 51′; 77° 2′, in Lahól-Tsánskar, a pass N.W. of the Bára Lácha pass.
Loc. 1) *Top of the pass* . . . . . 16,684 ft. Schl., Ad.
6, Adie. 1856, June 19, 12^h Noon. *B* = Símla; *C* = Mássúri.
A. 16 233; 33 1; 27. *B.* 23 079; 67·5; 68 = 16,693 ft. *C.* 23·457; 67·5; 81 = 16,675 ft.
„ 2) △ *Páder, on the north-eastern slopes of the Shínku La pass* . . . . . 14,062 ft. Schl., Ad.
6, Adie. 1856, June 20, 7^h A.M. *B* = Símla; *C* = Mássúri.
A. 17 847; 32·7; 40. *B.* 23·099; 59·0; 83 = 14,054 ft. *C.* 23·493; 61·5; 87 = 14,069 ft.

No. 493. Rálha Peak (β ⏄), 32° 20′·6; 77° 1′·6, in Kúlu, W. of △ Rálha, in the upper course of the Biás . . . . . 19,462 ft. G. T. S.
In the Jáko panorama this group becomes visible to the west of the Rotáng pass.

No. 494. Suhár Dévi, 31° 4′; 77° 1′, in Símla, W. of Símla.
Loc. 1) *Temple* . . . . . 5,413 ft. Ger.
„ 2) *Sáiri pass near Suhár Dévi* . . . . . 5,083 „ Ger.

No. 495. Kárdong, 32° 33′·8; 77° 0′·6 ⏄, in Lahól, the principal place of this province.
Loc. 1) *Government bungalo* . . . . . 10,242 ft. Schl., Rob.

14, Newman. 1856, June 13 and 14, 9h A.M.

A. 20·577; 57·2; 62. Símla 23·040; 62·1; 94 = 10,223 ft. Mássúri 23·477; 58·8; 100 = 10,271 ft.
„ 20·574; 62·6; 60. „ 23·009; 64·8; 91 = 10,215 „ „ 23·446; 60·1; 100 = 10,260 „

Loc. 2) *Undefined* . . . . . 10,813 ft. Cunning.

No. 496. SURAJGÁRH, 31° 9′; 77° 0′, in Símla, W. of the station of Símla.

Loc. *Fort* . . . . . 4,927 ft. Herb. and Hodgs.

No. 497. RÁRIK, 32° 43′; 77° 0′, in Lahól, N. of Kárdong, and W. of the Bára Lácha pass.

Loc. 1) *Lower houses of the village*. . . . . 11,685 ft. Schl., Ad.

6, Adie. 1856, June 17, 7h 30m A.M. *A.* 19·473; 48·4; 55. Símla 22·981; 61·2; 87. + 46 ft.

This is the highest village in the valley W. of Kárdong.

Loc. 2) △ *Tákbar Tsann, on the right bank of the Tsúnkar*. 12,336 ft. Schl., Ad.

6, Adie. 1856, June 17, 3h P.M. *B* = Símla; *C* = Mássúri.

A. 19·036; 62·8; 40. *B.* 22·988; 70·3; 75. — 53 = 12,365 ft. *C.* 23·359; 63·7; 94. — 57 = 12,306 ft.

No. 498. △ RAMCHÁK, 32° 48′; 77° 0′, in Lahól, near the south-western foot of the Shínku La pass.

Loc. *Encamping ground* . . . . . 14,395 ft. Schl., Ad.

6, Adie. 1856, June 18, 6h P.M. *B* = Símla; *C* = Mássúri.

A. 17·666; 53·6; 42. *B.* 22·984; 63·0; 76 = 14,397 ft. *C.* 23·367; 63·0; 74 = 14,392 ft.

No. 499. ÉRKI, 31° 9′; 76° 59′, in Símla, W.N.W. of Símla, on the road to Biláspur.

Loc. *Mean height of the village* . . . . . 3,559 ft. Schl., El.

1, Thermo-barom. 1856, June 3, 3h P.M. *B* = Símla; *C* = Mássúri.

A. 205°·35 Fahr.; 78·6; 45. *B.* 23·099; 66·9; 54. + 71 = 3,530 ft. *C.* 23·504; 54·0; 93. + 61 = 3,588 ft.

No. 500. JANGERTÍLLA MOUNTAIN, 31° 58′; 76° 59′, in Kúlu, E. of Sultánpur.

Loc. *Top of the mountain* . . . . . 11,447 ft. Mulh.

No. 501. SABÁTHU, 30° 58′·5; 76° 58′·5 ✝, in Símla, S.E. of Símla.

Loc. 1) *Cantonment* . . . . . 4,205 ft. Ger.

„ 2) *Fort* . . . . . 4,283 „ Ger.

No. 502. TÁKSAL, 30° 51′; 76° 58′, in Símla, a few miles N.E. of Kálka, in the outer ranges of the Himálaya.

Loc. *Grove of trees* . . . . . 2,886 ft. Ger.

No. 503. Búnga Mountain, 31° 51′; 76° 58′, in Kúlu, near the Úl.

Loc. *Top of the mountain* . . . . . 6,525 ft. Mulh.

No. 504. Súa Gárh, 30° 56′; 76° 56′, in Símla, about 20 miles N. of Kálka.

Loc. *Old fort* . . . . . 5,620 ft. Herb. and Hodgs.

No. 505. Sérri ka Jōth, 32° 5′; 76° 56′, in Kúlu, a pass leading from the Biás to the Úl valley.

Loc. 1) *Top of the pass* . . . . . 12,077 ft. Schl., Ad.

11, Pistor. 1857, May 13, $10^h\,45^m$ A.M. *A.* 19·323; 47·5; 26. Mässúri 23·516; 72·5; 43.

„ 2) *Upper limit of fir-trees, on the western slopes of the pass* . . . . . 11,080 ft. Schl., Ad.

= 997 ft. below the top of the pass; by aneroid.

No. 506. Goralótnu Peak (x ☥), 32° 6′·9; 76° 55′·6, in Kúlu, near the source of the Sivbári, an affluent of the Biás near Sultánpur . . . . . 15,108 ft. G. T. S.

No. 507. Mándi, 31° 42′·7; 76° 55′·3 ☥, in Kúlu, left bank of the Biás.

Loc. 1) *Great temple* . . . . . 2,480 ft. Schl., El.

1, Thermo-barom. 1856, June 10, 10^h A.M. *B* = Símla; *C* = Mässúri.

A. 206° 94; 88·6; 50. *B.* 23·111; 68 5; 82 = 2,477 ft. *C.* 23·485; 67·8; 82 = 2,483 ft.

For the same locality 2,482 ft. G. T. S. We take the mean for the final result.

Loc. 2) *Level of the Biás* . . . . . 2,415 ft. Schl., El.

1, Thermo-barom. 1856, June 12, 9^h A.M. *B* = Símla; *C* = Mässúri.

A. 207° 18 Fahr.; 77·3; 71. *B.* 23 075; 60 3; 91 = 2,389 ft. *C* = 23·493; 58·8; 96 = 2,440 ft.

No. 508. Tongaur Peak (β' ☥), 32° 12′·9; 76° 54′·6, in Kúlu.

Loc. *Top of the peak* . . . . . 17,028 ft. G. T. S.

This peak is but just visible in the Jáko panorama to the farthest west; it is difficult, however, to recognise this isolated object. Schl., Herm.

No. 509. Túng Mountain, 32° 5′; 76° 54′, in Kúlu, N.N.W. of Sultánpur.

Loc. *Top of the mountain* . . . . . 9,820 ft. Mulh.

No. 510. MAKHÓRI, or MOKHÓRI PEAK, 32° 12′; 76° 53′, in Chámba, E. of the Thámser peak.

Loc. 1) *Top of the peak* . . . . . 15,485 ft. G. T. S.

„ 2) *Makhóri, or Mokhóri pass* . . . . . 14,454 ft. Schl., Ad.

11, Pistor. 1857, May 10, 10h A.M. *A.* 17 681; 35 6; 89. Mássúri 23·532; 68·0; 52.

„ 3) *Upper limit of shrubs in the bottom of the Mokhóri valley* . . . . . 12,260 ft. Schl., Ad.

= 2,194 ft. below the pass; by aneroid.

On the *flanks* skirting the valley, shrubs grow to a still higher elevation.

No. 511. SÚKET, 31° 32′·3; 76° 52′·9 ☥, in Kúlu, N. of the Sátlej, and S. of the Biás.

Loc. *Miás bángalo* . . . . . 2,951 ft. Schl., El.

1, Thermo-Barom. 1856, June 9, 12h Noon. *B* = Símla; *C* = Mássúri.

A. 206°·45 Fahr.; 82·6; 43. *B.* 23·162; 68·2; 70. + 83 = 2,950 ft. *C.* 23·535; 68·0; 80. + 74 = 2,938 ft.

For the same locality 2,965 ft. G. T. S. For the final result we take the mean of this determination, and our own observations.

No. 512. BAHADURGÁRH, 31° 13′; 76° 52′, in Símla, S.S.E. of Biláspur.

Loc. *Fort* . . . . . 6,233 ft. Herb. and Hodg.

No. 513. GÚMA, 31° 58′; 76° 52′, in Kúlu, on the road from Kángra to Mándi.

Loc. 1) *Mean height of the village* . . . . . 5,118 ft. Mulh.

„ 2) *Langóte mountain, 1 mile N. of Gúma* . . . . . 7,522 „ Mulh.

No. 514. LOLÓNI PASS, 32° 27′; 76° 52′, in Chámba, N.E. of Bára Bánghal, leading to Lahól.

Loc. 1) *Top of the pass* . . . . . 16,948 ft. Schl., Ad.

11, Pistor. 1857, May 20. *B* = Mássúri; *C* = Símla.

11h A.M. *A.* 16·256; 35·6; 82. *B.* 23·646; 72 0; 61 = 16,949 ft. *C.* 23 193; 75·4; 37 = 16,910 ft.

12 Noon. „ 16 252; 37·0; 60. „ 23·646; 73·4; 60 = 16,979 „ „ 23·201; 77 5; 34 = 16,954 „

Loc. 2) *Foot of the southern Lolóni glacier* . . . . . 11,579 ft. Schl., Ad.

11, Pistor. 1857, May 19, 8h A.M. *A.* 19·729; 47·5; 40. Símla 23 201; 68 7; 45.

„ 3) *Foot of the northern Lolóni glacier* . . . . . 13,299 ft Schl., Ad.

11, Pistor. 1857, May 20, 4h 30m P.M. *A.* 18 516; 43 5; 40. Símla 23 142; 77·9; 38.

„ 4) *Upper limit of conifers above the village Móling* . . 11,490 ft. Schl., Ad.

= 1,809 ft. below the foot of the northern Lolóni glacier; by aneroid.

No. 515. GHÚSA PEAK, 32° 30′·5; 76° 51′·5 ☩, in Lahól, S.W. of Tándi, a village on the confluence of the Chándra and Bhága . . . . . 19,833 ft. G. T. S.

No. 516. BANÉRD, 31° 30′; 76° 51′, in Kúlu, 3 miles S. of Súket.

Loc. *Palace* . . . . . 3,210 ft. Mulh.

No. 517. MARVADÉVI MOUNTAIN, 31° 44′; 76° 50′, in Kúlu, in the Sikánder range, W.N.W. of Mándi . . . . . 6,669 ft. Mulh.

No. 518. MANIMÁJRA, 30° 43′; 76° 49′, in Símla, at the entrance of the Pinjúr valley.

Loc. 1) *Mean height of the village* . . . . . 1,220 ft. Herb. and Hodgs.

„ 2) *Pinjúr village* . . . . . ab. 1,800 „ J. A. Gerard.

No. 519. DIHÁR, 31° 25′; 76° 49′, in Kúlu, right bank of the Sátlej, N.E. of Biláspur.

Loc. *Level of the Sátlej* . . . . . 1,627 ft. Schl., El.

1, Thermo-barom. 1856, June 8, 2h P.M. *A.* 208″ 40 Fahr.; 97·8; 50. Símla 23·115; 78·4; 57. + 109 ft.

No. 520. GÁURI PEAK (*O′* ☩), 32° 10′·9; 76° 48′·9 ☩, in Chámba, S. of the Rávi, N. of the Mótli peak . . . . . 16,017 ft. G. T. S.

No. 521. MALÁUN, 31° 13′; 76° 48′, in Símla, S.S.E. of Biláspur.

Loc. *Mean height of the village* . . . . . 4,448 ft. Herb. and Hodgs.

No. 522. DEVIDHÁR, 32° 3′; 76° 48′, in Kúlu, E. of Bijnáth.

Loc. *Mean height of the village* . . . . . 9,523 ft. Mulh.

No. 523. MÓTLI PEAK (*O* ☩), 32° 8′·8; 76° 47′·9, in Kúlu, E. of the Barbagárh, the name of the eastern branch of the Úl in its upper course . . . . . 14,886 ft. G. T. S.

No. 524. CHIMRÁT PEAK, 32° 46′·4; 76° 47′·2 ☩, in Kishtvár, N.W. of Tándi, and N.E. of Triloknáth . . . . . 20,257 ft. G. T. S.

No. 525. RATANGÍRI MOUNTAIN, 32° 4′; 76° 47′, in Kúlu, E. of Bijnáth.

Loc. *Top of the mountain* . . . . . 10,249 ft. Mulh.

No. 526. BABÁURI MOUNTAIN, 31° 55′; 76° 46½ in Kúlu, in the Sikánder range, 6 miles N.E. of the Biás . . . . . 6,075 ft. Mulh.

No. 527. CHABUTRAHÁTTI MOUNTAIN, 32° 0′; 76° 46′, in Kúlu, S.E. of Bijnáth, on the road from Kángra to Mándi . . . . . 3,853 ft. Mulh.

No. 528. BÁNGHAL, or BÁNGAHAL MOUNTAIN, 32° 17′; 76° 46′, in Chámba, E. of Bára Bánghal, or Bángahal . . . . . 14,598 ft. Mulh.

No. 529. THÁMSER PEAK, 32° 12′·6; 76° 44′·7 ⛀, in Kúlu, N. of Bijnáth.
Loc. *Top of the peak* . . . . . 16,662 ft. G. T. S.

No. 530. BILÁSPUR, 31° 19′·6; 76° 44′·3 ⛀, in Símla, on the left bank of the Sátlej.
Loc. *Level of the Sátlej* . . . . . 1,535 ft. Schl., El.

1, Thermo-barom. 1856, June 6, 1h P. M. *B* = Símla; *C* = Mässúri.
A. 208°·76 Fahr.; 96·3; 49. *B*. 23 181; 74·3; 62. + 111 = 1,523 ft. *C*. 23·556; 67·8; 89. + 101 = 1,547 ft.

Nos. 531-4. NORTHERN CHÁNDRA BHÁGA PEAKS, in Lahól.

No. 531. NORTHERN CHÁNDRA BHÁGA PEAK, 33° 2′·5; 76° 44′·2 ⛀. 18,180 ft. G. T. S.

No. 532. NORTHERN CHÁNDRA BHÁGA PEAK 1 ⛀, 33°4′·4; 76° 34′·0. 18,645 ft. G. T. S.

No. 533. NORTHERN CHÁNDRA BHÁGA PEAK α′⛀, 33° 5′·7; 76° 34′·0. 20,151 ft. G. T. S.

No. 534. NORTHERN CHÁNDRA BHÁGA PEAK α⛀, 32° 49′·2; 76° 32′·3. 20,658 ft. G. T. S.

No. 535. CHÁMBA, 31° 13′; 76° 43′, in Símla, S. of Biláspur.
Loc. *Fort* . . . . . 4,400 ft. Herb. and Hodgs.

No. 536. TÁTIPUR, 31° 14′; 76° 43′, in Símla, near the left bank of the Sátlej.
Loc. *Fort* . . . . . 4,089 ft. Herb. and Hodgs.

No. 537. ÁIJU, 32° 1′; 76° 43′, in Kúlu, S.S.E. of Bijnáth.
Loc. *Fort* . . . . . 4,892 ft. Mulh.

No. 538. BÁRA BÁNGHAL, or BÁNGAHAL, 32° 18′; 76° 43′, in Chámba, near the Rávi, N. of the Thámser peak.

Loc. *Mean height of the village* . . . . . 8,535 ft. Mulh.

No. 539. SÚNSAL, 32° 4′; 76° 42′, in Chámba, 4 miles E. of Bijnáth.

Loc. *Mean height of the village* . . . . . 4,457 ft. Schl., Ad.

11, Pistor. 1857, April 20, 3h P.M. *A.* 25·599; 56·8; 40. Banóg 22·875; 56·8; 51. + 31 ft.

No. 540. DEVÁL, 32° 6′; 76° 42′, in Chámba, about 8 miles N.E. of Bijnáth.

Loc. *Saline spring* . . . . . 4,240 ft. Schl., Ad.

11, Pistor. 1857, April 20, 10h A.M. *A.* 25·796; 63·7; 41. Banóg 22·925; 56·6; 60.

Nos. 541-2. CHÉRO PEAKS, in Chámba, S. of Triloknáth.

No. 541. CHÉRO EAST PEAK (*P′* ⏚), 32° 34′·6; 76° 41′·9. . . 20,044 ft. G. T. S.

No. 542. CHÉRO WEST PEAK, 32° 33′·7; 76° 36′·2 ⏚ . . . . 19,208 ft. G. T. S.

Nos. 543-4. GURDHÁR PEAKS, in Kishtvár.

No. 543. GURDHÁR SOUTH PEAK, 32° 55′·1; 76° 41′·9 ⏚. . . 21,142 ft. G. T. S.

No. 544. GURDHÁR NORTH PEAK (*x* ⏚), 32° 57′·6; 76° 37′·2 . 17,919 ft. G. T. S.

No. 545. KÁMLA, 31° 48′; 76° 41′, in Kúlu, 4 miles S. of the Biás.

Loc. *Temple on the hill* . . . . . 4,475 ft. Mulh.

No. 546. MÁNI MAHÉS PEAK, 32° 23′·6; 76° 39′·5 ⏚, in Chámba, N. of the Rávi.

Loc. *Top of the peak* . . . . . 18,564 ft. G. T. S.

No. 547. BIJNÁTH, 32° 3′·1; 76° 38′·9 ⏚, in Chámba, N. of the Biás.

Loc. *Rajgíri temple* . . . . . 3,357 ft. G. T. S.

No. 548. RAJÁIR PEAK (*A* ⏚), 32° 11′·1; 76° 38′·4, in Chámba, Dháula Dhar range, N.E. of the village of Bándli, and S.W. of the Thámser peak . . . 14,101 ft. G. T. S.

No. 549. SATMÁRU MOUNTAIN, 32° 16′; 76° 35′, in Chámba, in the Dháula Dhar range. E. of Bhágsu and of Dharamsála. . . . . 13,575 ft. Cunning.

No. 550. LAMBAGÁŨ, 31° 54′; 76° 34′, in Chámba, on the right bank of the Biás. N.E. of Nadáun.

Loc. *Level of the Biás* . . . . . 1,808 ft. Mulh.

No. 551. ÁSAPUR, 31° 58′·3; 76° 33′·7 ⏚, in Kúlu, N. of the Biás, and S.W. of Bijnáth

Loc. *Platform of the Revenue Hill Station* . . . . . 4,550 ft. Mulh.

No. 552. HANOTÍLLA, or HANSITÍLLA MOUNTAIN, 32° 11′; 76° 31′, in Chámba, E. of Bhágsu . . . . . 10,181 ft. G. T. S.

No. 553. SUJHÁNPUR, 31° 50′·3; 76° 29′·7 ⏚, in Kúlu, on the left bank of the Biás.

Loc. *Mausoleum* . . . . . 1,947 ft. G. T. S.

No. 554. BARVÁRNI, 32° 2′; 76° 29′, in Chámba, E. of Kángra.

Loc. *Flag on the road through the bazar* . . . . . 3,198 ft. Mulh.

No. 555. TÚRAL PEAK (α ⏚), 32° 15′·0; 76° 28′·2 ⏚, in Chámba, S. of the Rávi, in the Dháula Dhar range, E.N.E. of Dharamsála.

Loc. 1) *Top of the peak* . . . . . 16,315 ft. G. T. S.

„ *ditto* . . . . . 16,174 „ Cunning.

„ 2) *Túral pass* . . . . . 14,808 „ Cunning.

No. 556. PATIÁR, 32° 7′; 76° 27′, in Chámba, N.E. of Kángra.

Loc. *Platform of the Revenue Hill Station* . . . . . 4,521 ft. Mulh.

No. 557. CHANDRAHANTÍLLA MOUNTAIN, 32° 11′; 76° 27′, in Chámba, 8 miles E. of Bhágsu . . . . . 8,987 ft. Mulh.

No. 558. MÁNDANI, 31° 11′; 77° 26′, in Símla, E. of Mattiána.

Loc. *Mean height of the village* . . . . . 7,428 ft. Ger.

No. 559. JARÁIT, 32° 4′; 76° 25′, in Chámba, E. of Kángra.

Loc. *Platform of the Revenue Hill Station* . . . . . 3,775 ft. Mulh.

No. 560. - KOTLÉR, 31° 29′; 76° 24′, in Kúlu, 4 miles E. of the Sohán.

Loc. 1) *Fort* . . . . . 3,463 ft. Mulh.

„ 2) *Kotvál Báhi fort* . . . . . 4,197 „ Mulh.

No. 561. NAGRÓTI, 32° 6′; 76° 23′, in Chámba, E. of Kángra, and S.E. of Bhágsu.

Loc. *Flag on the road through the bazar* . . . . . 2,816 ft. Mulh.

No. 562. TUTÁRNA MOUNTAIN, 32° 14′; 76° 23′, in Chámba, 3 miles N.E. of Bhágsu.

Loc. *Top of the mountain* . . . . . 8,243 ft. G. T. S.

No. 563. ANDRÁR PEAK, 32° 18′; 76° 22′, in Chámba, in the western parts of the Dháula Dhar range, N.N.E. of Dharamsála . . . . . 15,642 ft. Cunning.

No. 564. SÓLA SÍNGHI, 31° 37′·6; 76° 21′·6 ⛤, in Kúlu, on the road from Kotlér to Nadáun.

Loc. *Platform on the fort* . . . . . 3,821 ft. Mulh.

No. 565. JASÁUR MOUNTAIN, 32° 6′; 76° 21′, in Chámba, 6 miles N.E. of Kángra.

Loc. *Top of the mountain* . . . . . 2,936 ft. G. T. S.

No. 566-71. SOUTHERN CHÁNDRA BHÁGA PEAKS, in Kishtvár.

No. 566. SOUTHERN CHÁNDRA BHÁGA PEAK *N* ⛤, 32° 55′·2; 76° 20′·2.

17,243 ft. G. T. S.

No. 567. SOUTHERN CHÁNDRA BHÁGA PEAK *D* ⛤, 32° 58′·4; 76° 19′·5.

17,426 ft. G. T. S.

No. 568. SOUTHERN CHÁNDRA BHÁGA PEAK *E* ⛤, 32° 59′·4; 76° 15′·1.

16,042 ft. G. T. S.

No. 569. SOUTHERN CHÁNDRA BHÁGA PEAK *W. End* ⛤, 32° 40′·4; 76° 25′·7.

18,639 ft. G. T. S.

No. 570. SOUTHERN CHÁNDRA BHÁGA PEAK *Double Top* ⛤, 32° 40′·9; 76° 31′·2.

19,668 ft. G. T. S.

No. 571. SOUTHERN CHÁNDRA BHÁGA PEAK *Black Cone* ⛤, 32° 49′·2; 76° 21′·6.

17,145 ft. G. T. S.

No. 572. JVALAGÁRH, 31° 53′; 76° 20′, in Chámba, near the well-known temple of Jvála Múkhi, about 10 miles N. of Nadáun.

Loc. *Fort* . . . . . 3,284 ft. Mulh.

No. 573. DHARAMSÁLA, 32° 15′·7; 76° 19′·4 ✝, in Chámba, a few miles N. of Bhágsu.

Loc. *Platform of the Revenue Hill Station* . . . . . 9,205 ft. G. T. S.

No. 574. PAUPDÁR PEAK, 32° 56′·5; 76° 19′·2 ✝, in Kishtvár, W. of the Chándra Bhága. . . . . 16,836 ft. G. T. S.

No. 575. JVÁLA MÚKHI, 31° 52′·6; 76° 18′·6, in Chámba, about 8 miles N. of Nadáun.

Loc. *Great temple* . . . . . 1,888 ft. Schl., El.

1, Thermo-barom. 1856, June 24, 5h P.M. *A.* 207°·72 Fahr.; 98·3; 40. Mãssúri 23·394; 71 1; 83. + 17 = 1,893 ft.

For the same locality 1,883 ft. G. T. S. We take the mean for the final result.

No. 576. NADÁUN, 31° 47′·0; 76° 18′·5 ✝, in Kúlu, a large town on the left bank of the Biás.

Loc. 1) *Level of the Biás* . . . . . 1,535 ft. Schl., El.

1, Thermo-barom. 1856, June 23. 12h Noon. *B* = Símla; *C* = Mãssúri.

A. 208°·52 Fahr.; 100·6; 37. *B.* 23·079; 75·0; 68. + 112 = 1,519 ft. *C.* 23·165; 70 0; 93 + 101 1,551 ft.

Loc. 2) *Village Sid, near Nadáun* . . . . . 3,609 ft. Mulh.

No. 577. BHÁGSU, 32° 12′·4; 76° 18′·3 ✝, in Chámba, a cantonment, N. of Kángra.

Loc. 1) *Cantonment flag-staff* . . . . . 4,058 ft. G. T. S

„ 2) *Kăchérri* . . . . . 4,730 „ Schl., El.

1, Thermo-barom. 1856, July 3, 11h 30m A.M. *B* = Símla; *C* = Mãssúri.

A. 203°·23 Fahr.; 68·3; 51. *B.* 23·071; 66·2; 93. + 23 = 4,722 ft. *C.* 23·473; 66 9; 97. + 19 = 4,737 ft.

Loc. 3) *Top of the roof of Major Ferris's house* . . . . . 6,111 ft. Mulh.

„ 4) *Floor of the veranda of Mr. Barnes's house* . . . . . 4,801 „ Mulh.

No. 578. GÁMBER MOUNTAIN, 31° 55′; 76° 18′, in Chámba, on the road between Jvála Múkhi and Kángra . . . . . 3,803 ft. G. T. S

No. 579. ÚNA, 31° 28′; 76° 17′, in Kúlu, on the left bank of the Sohán.

Loc. *Dome* . . . . . 1,329 ft. Mulh.

No. 580. VÉHELI PEAK (2 ✝), 33° 19′·3; 76° 17′·0, in Kishtvár, E. of Kishtvár.

Loc. *Top of the peak* . . . . . 19,906 ft. G. T. S.

No. 581. KÁNGRA, 32° 5′·2; 76° 14′·4 ⏚, in Chámbá, civil and military station, with large tea plantations in the environs.

Loc. 1) *Officers' bángalo* . . . . . 2,553 ft. Schl., El.

1, Thermo-barom. 1856, July 1, 10h A.M. *B* = Símla; *C* = Mássúri.
A. 206″ 64 Fahr.; 98·3; 41. *B.* 23·075; 74·7; 61 = 2,541 ft. *C.* 23·454; 69·6; 91 = 2,565 ft.

„ 2) *Level of the Bangánga at Kángra* . . . . . 1,927 ft. Schl., El.

1, Thermo-barom. 1856, July 1, 12h Noon. *B* = Símla; *C* = Mássúri.
A. 207 75 Fahr.; 97·3; 41. *B.* 23·075; 76·8; 61. + 51 = 1,915 ft. *C.* 23 450; 72·1; 88. + 46 = 1,938 ft.

Loc. 3) *Fort staff* . . . . . 2,419 ft. G. T. S.

„ 4) *Kächérri* . . . . . 2,696 „ G. T. S.

„ 5) *Hot spring "Thatváni" near Kángra* . . . . . 1,602 „ Schl., El.
= 325 ft. below the Bangánga; by aneroid.

No. 582. SÁCHI PEAK, 33° 1′·6; 76° 13′·7 ⏚, in Kishtvár, near the Sáchi Jōth (pass), leading from Chámba to Kishtvár. . . . . 16,410 ft. G. T. S.

No. 583. SÁCHI PASS, 33° 0′; 76° 13′, in Kishtvár-Chámba, leading from Chámba to Kishtvár . . . . . 15,500 ft. Thoms.

No. 584. RÍLHU, 32° 13′·6; 76° 11′·8 ⏚, in Chámba, about 20 miles N.W. of Kángra.

Loc. *Fort* . . . . . 3,184 ft. Mulh.

No. 585. KÁLOA MOUNTAIN, 31° 46′·1; 76° 11′·4 ⏚, in Chámba, near the high road from Amb to Kángra . . . . . 3,065 ft. G. T. S.

No. 586. MAHADHVÁNI, 31° 17′·7; 76° 11′·0 ⏚, in Kúlu, W. of the Sohán.

Loc. *Hill Station* . . . . . 1,943 ft. G. T. S.

No. 587. KÓLI, 31° 57′; 76° 10′, in Chámba, near the right bank of the Biás.

Loc. *Level of the Biás* . . . . . 1,333 ft. Schl., El.

1, Thermo-barom. 1856, June 26, 9h A.M. *B* = Simla; *C* = Mássúri.
A. 209° 04 Fahr.; 78 8; 52. *B.* 23 099; 61 7; 85 = 1,334 ft. *C.* 23·493; 65·1; 78 = 1,331 ft.

No. 588. LEPIÁNA MOUNTAIN 32° 9′; 76° 9′, in Chámba, N.W. of Kángra.

Loc. *Top of the mountain* . . . . . 2,918 ft. G. T. S.

No. 589. HĀRIPUR, 32° 0′·4; 76° 8′·8 ⏚, in Chámba, left bank of the Bangánga, an affluent of the Biás.

Loc. 1) *Mean height of the village* . . . . . 1,732 ft. Schl., El.

1, Thermo-barom. 1856, June 26, 6h 30m P.M. *A.* 208°·28 Fahr.; 83·3; 62. Símla 23·079; 59 0; 85.

Loc. 2) *Sídpur tower* . . . . . 2,324 ft. Mulh.

No. 590. TILOKNĀTH, 32° 15′; 76° 3′, in Chámba, E. of Núrpur.

Loc. 1) *Mean height of the village* . . . . . 2,127 ft. Schl., El.

1, Thermo-barom. 1856, July 10, 5h P.M. *A.* 207°·27 Fahr.; 90·3; 68. Mūssúri 23·351; 61 4; 92.

Loc. 2) *Fort* . . . . . 2,370 ft. Mulh.

No. 591. KISHTVÁR PEAK (No. 1 ⏚), 33° 11′·0; 76° 2′·2, in Kishtvár, E.S.E. of Kishtvár . . . . . 16,662 ft. G.T.S.

This is one of the highest peaks visible in the Himálayan part of the Nunevára panorama. Its position coincides with the eastern sources of the Chináb. Schl., Ad.

No. 592. PÁMRA MOUNTAIN, 31° 37′; 76° 2′, in Kúlu, N.E. of Hoshiárpur.

Loc. *Top of the mountain* . . . . . 3,047 ft. G.T.S.

No. 593. HÁTI DHĀR, 32° 21′; 76° 1′, in Chámba, N.E. of Núrpur.

Loc. *Platform on the summit of the peak* . . . . . 5,254 ft. Mulh.

No. 594. KÓTELA, or KÓTLI, 32° 16′; 76° 0′, in Chámba, E. of Núrpur.

Loc. 1) *Mean height of the village* . . . . . 1,798 ft. Schl., El.

1, Thermo-barom. 1856, July 10, 6h P.M. *A.* 207 96 Fahr.; 84·3; 70. Símla 23 021; 64 0; 95.

Loc. 2) *Fort* . . . . . 2,076 ft. Mulh.

No. 595. DARÓT MOUNTAIN, 32° 4′; 75° 55′, in Chámba, about 40 miles W. of Kángra.

Loc. *Top of the mountain* . . . . . 1,870 ft. G.T.S.

No. 596. CHÁTTER MOUNTAIN, 32° 10′; 75° 53′, in Chámba, about 40 miles W.N.W. of Kángra . . . . . 2,130 ft. G.T.S.

No. 597. NÚRPUR, 32° 18′·2; 75° 52′·0 ⏚, in Chámba, N.W. of Rílhu.

Loc. 1) *Parapet wall round the flagstaff in the fort* . . . . . 2,050 ft. Mulh.

Loc. 2) *Dharamsála* . . . . . 1,887 ft. Schl., El.

1, Thermo-barom. 1856, July 15, 5h P.M. *B* = Símla; *C* = Mássúri.
A. 207°·67 Fahr.; 90·1; 68. *B*. 22·984; 67·5; 100 = 1,881 ft. *C*. 23 359; 65·5; 97 = 1,892 ft.

No. 598. Tso Kor, or Kahintál, 34° 1′; 75° 51′, in Kishtvár, a small lake S.W. of the Súru pass.

Loc. *Level of the lake*. . . . . 10,867 ft. Schl., Herm.

8, Pistor. 1856, Oct. 13, 7h A.M. *A*. 20·020; 28·4; 47. Srinágger 24 863; 40·5; 56.

No. 599. Hájipur, 31° 58′·5; 75° 43′·9†, in Chámba, a cantonment on the left bank of the Biás, S.W. of Kángra.

Loc. *Fort* . . . . . 1,031 ft. Mulh.

No. 600. Súkne, 34° 0′; 75° 43′, in Kishtvár, N. of Värdván.

Loc. *Large trees, in the southern part of the village* . . . . . 9,122 ft. Schl., Herm.

8, Pistor. 1856, Oct. 11, 11h A.M.
A. 21 561, 61·9; 13. Símla 23 189; 60·1; 64 = 9,093 ft. Srinágger 24 882; 61·5; 39 = 9,150 ft.

No. 601. Pashmín, 33° 57′; 75° 42′, in Kishtvár, on the road from the Súru pass to Vardván.

Loc. *Mean height of the village* . . . . . 8,351 ft. Schl., Herm.

8, Pistor. 1856, Oct. 15, 7h 30m A.M. *B* = Símla; *C* = Srinágger. Loc. corr. — 29 ft.
A. 22 146; 34 5; 30. *B*. 23·268; 53 1; 53 = 8,390 ft. *C*. 24 914; 50·7; 52 = 8,311 ft.

At Pashmín I had occasion to observe an eclipse of the moon. The details of the astronomical observations are given in Vol. I. pp. 113-19.

No. 602. Márgan Pass, 33° 50′; 75° 40′, in Kishtvár, leading from Värdván to Kashmír.

Loc. △ *Nafghán, eastern foot of the pass* . . . . . 9,655 ft. Schl., Herm.

8, Pistor. 1856, Oct. 16, 9h A.M. *A*. 21·202; 50 2; 12. Símla 23·308; 53 6; 56.

Nos. 603-4. Chathardhár Peaks,

in Jámu, S. of Bhadrár, in the range running along the southern bank of the Chináb.

No. 603. Chathardhár South Peak, 32° 51′·9; 75° 36′·9† . . 13,488 ft. G. T. S.

No. 604. Chathardhár North Peak, 32° 57′·0; 75° 31′·2† . . 12,790 ft. G. T. S.

No. 605. PATHĀNKÓT, 32° 17′; 75° 36′, in Chámba, left bank of the Rávi.

Loc. *Mean height of the village* . . . . . 1,162 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 2, 12h Noon. *A.* 209°·25 Fahr.; 80·8; 60. Símla 23 040; 64·4; 97. + 59 ft.

No. 606. MACHAHÓI PEAK (*f* ☥), 34° 13′·7; 75° 34′·3, in Kashmír-Dras, above the Machahói glacier in the Hímbab range . . . . . 17,904 ft. G. T. S.

No. 607. BHÍRI, 32° 22′; 75° 34′, in Chámba, between Núrpur and Jäsrótha.

Loc. *Mean height of the village* . . . . . 1,094 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 2, 4h P.M. *A.* 209° 17 Fahr.; 90·8; 80. Símla 23 009; 63·5; 97. + 58 ft.

No. 608. KÁTUA, 32° 27′; 75° 32′, in Chámba, half way between Núrpur and Jäsrótha.

Loc. *Mean height of the village* . . . . . 1,040 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 18, 12h Noon. *A.* 209°·53 Fahr; 87·6; 69. Símla 23·111, 63·3; 95. + 60 ft.

No. 609. PURMÁNDEL KE SIR (No. 12 ☥), 34° 3′·6; 75° 30′·4, in Dras, E.S.E. of the Báltal peak . . . . . 17,052 ft. G. T. S.

No. 610. TSÓJI PASS, 34° 21′; 75° 30′, in Dras-Kashmír, leading from Dras to Kashmír.

Loc. 1) *Level of the tank on the top of the pass* . . . . . 11,376 ft. Schl, Rob.

„ *ditto* . . . . . 11,634 „ Cunning.

7, Pistor. 1856, Oct. 14, 12h Noon.

A. 19·863; 51 4; 10. Símla 23·205; 61·5; 62 = 11,368 ft. Srinágger 24 867; 63 9; 37 = 11,384 ft.

Loc. 2) *Highest point to be crossed after the tank* . . . . . 11,498 ft. Schl., Rob.

122 ft. above the tank; by aneroid.

„ 3) *Lower end of the glacier; slopes towards Matáï* . . . 10,967 „ Schl., Rob.

7, Pistor. 1856, Oct. 14, 10h A.M.

A. 20·130; 49·6; 9. Símla 23·166; 57·2; 70 = 10,924 ft. Srinágger 24 914; 56·8; 44 = 11,010 ft.

Loc. 4) *Báltal Dharamsála, on the south-western foot of the Tsóji pass* . . . . . 9,321 ft. Schl., Rob.

7, Pistor. 1856, Oct. 15, 8h A.M.

A. 21 394; 39·6; 22. Símla 23·268; 52 9; 53 = 9,333 ft. Srinágger 24·937; 54·7; 53 = 9,308 ft.

The level of the Sindh river is 30 ft. lower.

Nos. 611-13. Pir Panjál Peaks, in Kashmír, E. of the Jhílum.

No. 611. Pir Panjál Peak α ⛦, 33° 48′·9; 75° 26′·5 . . . . 14,581 ft. G. T. S.

No. 612. Pir Panjál Peak β^5 ⛦, 33° 26′·1; 75° 28′·1 . . . . 14,546 ft. G. T. S.

No. 613. Pir Panjál Peak β^6 ⛦, 33° 32′·0; 75° 28′·8 . . . . 14,187 ft. G. T. S.

These three peaks are visible in the Nunevára panorama (Himálayan part). Schl., Ad.

No. 614. Ambárnáth Peak (e ⛦), 34° 13′·6; 75° 28′·7, in Kashmír, above the Ambarnáth caves . . . . . 17,321 ft. G. T. S.

Not visible in the Nunevára panorama, being concealed by the Haramúk. Schl., Ad.

No. 615. Samnabánj Mountain, 32° 43′·6; 75° 24′·3 ⛦, in Chámba, E. of Sialkót, in the Pánjáb . . . . . 7,254 ft. G. T. S.

No. 616. Kárchunt Mountain, 32° 59′·8; 75° 24′·1 ⛦, in Jámu, E. of Trikúta, and S. of the Chináb . . . . . 10,014 ft. G. T. S.

No. 617. Jásrótha, 32° 30′; 75° 27′, in Chámba, between Núrpur and Jámu.

Loc. *Saráí* . . . . . 1,738 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 21, 5^h P.M. B = Simla; C = Mássúri.

A 208 10 Fahr.; 81 6; 71. B. 23·170; 66·6; 92 = 1,743 ft. C. 23 535; 65·3; 92 = 1,733 ft.

No. 618. Ahartatópa Peak, 33°.23′·9; 75° 18′·9 ⛦, in Kishtvár-Kashmír, S.E. parts of the Pir Panjál range, forming the southern boundary of the valley of Kashmír 13,043 ft. G. T. S.

This peak is an object of particular interest in the Nunevára panorama, as it is close to the source of the Jhílum. Schl., Ad.

No. 619. Báltal, or Gvashbrári Peak, 34° 9′·9; 75° 18′·8 ⛦, in Kashmír, situated in the ridge which forms the southern boundary of the Sindh, an affluent of the Jhílum 17,839 ft. G.T.S.

Earlier maps call this peak Kántal. Jacquemont gives its height as 19,650 ft. It is a peak situated in one of the larger groups of snow-peaks in the Nunevára panorama.

No. 620. Kárpur Mountain, 33° 40′·1; 75° 18′·7 ⛦, in Kashmír, S.E. of Islamabád on the Jhílum . . . . . 8,786 ft. G. T. S.

No. 621. NÓBUG, 33° 38′; 75° 16′, in Kashmír, S.E. of Islamabád.

Loc. *Upper part of the village* . . . . . 7,276 ft. Schl., Herm.

8, Pistor. 1856, Oct. 16, 2h P.M. *A.* 23·106; 63·0; 10. Simla 23·288; 65·1; 58.

No. 622. CHÚRU MOUNTAIN, 33° 56′·9; 75° 12′·5 ⛆, in Kashmír, N. of Islamabád, on the Jhílum . . . . . 11,346 ft. G. T. S.

No. 623. KÚLLAN, 34° 14′; 75° 9′, in Kashmír, on the right bank of the Sindh.

Loc. *Level of the Sindh* . . . . . 7,178 ft. Schl., Rob.

7, Pistor. 1856, Oct. 16, 8h A.M. *A.* 23·150; 42·1; 46. Simla 23·284; 51·4; 54. Loc. corr. — 35 ft.

No. 624. ISLAMABÁD MOUNTAIN, 33° 43′·8; 75° 8′·7 ⛆, in Kashmír, near Islamabád, a large town on the right bank of the Jhílum . . . . . 5,896 ft. G. T. S.

No. 625. KOL NÁRVA PEAK, 33° 30′·4; 75° 5′·0 ⛆, in Kishtvár-Kashmír, Pir Panjál range, forming the southern boundary of the valley of Kashmír.

Loc. *Top of the peak* . . . . . 12,746 ft. G. T. S.

„ *ditto* . . . . . 12,500 „ Vig.

This peak being in the Himálayan part of the Nunevára panorama 5 miles nearer to the observer than the Dídium peak, makes it appear under nearly the same vertical angle. Schl., Ad.

No. 626. SARÁULI MOUNTAIN, 33° 2′·6; 75° 2′·2 ⛆, in Jámu, S. of the Chináb.

Loc. *Top of the mountain* . . . . . 8,177 ft. G. T. S.

No. 627. GARHAGÁRH MOUNTAIN, 32° 38′·0; 75° 1′·1 ⛆, in Jámu, E. of Sialkót, a military station in the Pănjáb . . . . . 2,045 ft. G. T. S.

No. 628. HARMÁNDAR, 32° 32′; 75° 1′, in Chámba, W. of Jásrótha.

Loc. *Mean height of the village* . . . . . 1,266 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 27, 1h P.M. *B* = Simla; *C* = Massúri.

A. 209°·42 Fahr.; 79·1; 91. *B.* 23·189; 61·5; 100. + 58 = 1,266 ft. *C.* 23 587; 64 8; 93. + 53 = 1,265 ft.

No. 629. DÍDIUM PEAK, 33° 24′·8; 74° 59′·8 ⛆, in Kishtvár-Kashmír, Pir Panjál range, forming the southern boundary of the valley of Kashmír.

Loc. *Top of the peak* . . . . . 14,952 ft. G. T. S.

„ *ditto* . . . . . 13,000 „ Vig.

This peak is visible from Sialkót in the Pănjáb, as well as from the Nunevára panorama.

Schl., Ad.

No. 630. REBÁN MOUNTAIN, 33° 45′·4; 74° 58′·9 ⅄, in Kashmír, W. of Islamabád on the Jhílum . . . . . 5,462 ft. G. T. S.

No. 631. CHÉREVAN, 34° 13′; 74° 56′, in Kashmír, right bank of the Sindh.

Loc. *Level of the Sindh* . . . . . 6,002 ft. Schl., Rob.

7, Pistor. 1856, Oct. 16, 2h P.M.

A. 24·185; 66·9; 19. Símla 23·288; 64·8; 58 = 5,986 ft. Mássúri 23·701; 64 0; 70 = 6,018 ft.

No. 632. HARAMÚK PEAK, 34° 24′·1; 74° 53′·6 ⅄, in Kashmír, N. of Srinágger, the capital of Kashmír . . . . . 16,903 ft. G. T. S.

This peak, which forms the eastern end of the Himálaya ranges as seen from the Nunevára panorama (Himálayan part), is seen from nearly every part of Kashmír, and is celebrated for the beautiful view it commands. Schl., Ad.

No. 633. ZEBANVÁN MOUNTAIN, 34° 4′·0; 74° 53′·1 ⅄, in Kashmír, near Srinágger, the capital of Kashmír . . . . . 8,813 ft. G. T. S.

No. 634. PAHARGÁRH MOUNTAIN, 33° 32′·1; 74° 52′·8 ⅄, in Kashmír, W. of the Kol Nárva peak . . . . . 11,369 ft. G. T. S.

No. 635. JÁMU, 32° 44′·5; 74° 51′·4 ⅄, in Jámu, the chief place of this province.

Loc. *Rájah's public bángalo* . . . . . 1,324 ft. Schl., El.

1, Thermo-barom. 1856, Aug. 29, 5h P.M. *B* = Símla; *C* = Mássúri.

A. 209° 01; Fahr. 86·0; 76. *B*. 23·131; 61 7; 98 = 1,327 ft. *C*. 23·508; 62·6; 95 = 1,320 ft.

No. 636. SHÁPION MOUNTAIN, 33° 42′·7; 74° 50′·4 ⅄, in Kashmír, southern parts of the Kashmír valley, W. of Islamabád.

Loc. 1) *Top of the peak* . . . . . 7,049 ft. G. T. S.

„ 2) *Mean height of the village Shápion* . . . . . 6,672 „ Schl., El.

1, Thermo-barom. 1856, Sept. 19, 5h P.M. *B* = Símla; *C* = Mássúri.

A. 209° 17 Fahr., 71 8; 50. *B*. 23 209; 64 9; 90 = 6,660 ft. *C*. 23·614; 62 2; 91 = 6,684 ft.

No. 637. CHINÁR, 34° 8′·0; 74° 50′·3 ⅄, in Kashmír, an island in the lake near Srinágger, the capital of Kashmír.

Loc. *Trigonometrical signal* . . . . . 5,209 ft. G. T. S.

Nos. 638-42. RÁṬAN PIR PEAKS, in Rajáuri.

No. 638. RÁTAN PIR PEAK b^1, 33° 28′·6; 74° 50′·0 . . 15,140 ft. G. T. S.

No. 639. RÁTAN PIR PEAK b^3, 33° 29′·3; 74° 48′·6 . . 15,593 ft. G. T. S.

No. 640. RÁTAN PIR PEAK c^1, 33° 31′·5; 74° 41′·4 . . 15,095 ft. G. T. S.

No. 641. RÁTAN PIR PEAK c^2, 33° 31′·6; 74° 41′·4 . . 15,127 ft. G. T. S.

No. 642. RÁTAN PIR PEAK d, 33° 32′·7; 74° 38′·8 . . 15,114 ft. G. T. S.

No. 643. TAKHT-I-SULAIMÁN MOUNTAIN, 34° 4′·8; 74° 49′·7 ♁, in Kashmír, near Srinágger, the capital of Kashmír . . . . . 6,266 ft. G. T. S.

No. 644. BÁRMA SÁKUL PEAK, 33° 28′·9; 74° 49′·3 ♁, in Kishtvár-Kashmír, above Kósa Nag, in the Banihál Panjál . . . . . 15,483 ft. G. T. S.

This peak, as well as its slopes towards Shápion, are seen near a broad opening in the Nunevára panorama (Himálayan part). Schl., Ad.

No. 645. ZIÁN, 34° 41′; 74° 56′, in Kashmír, upper Gurés valley, N.E. of Dáver.

Loc. *Mean height of the village* . . . . . 8,162 ft. Schl., Ad.

6, Adie. 1856, Oct. 3, 7h A.M. *B* = Símla, *C* = Massúri.

A. 22·279; 30·2; 44. *B*. 23·249; 51·6; 84 = 8,192 ft. *C*. 23·583; 61·2; 83 = 8,132 ft.

No. 646. NÚNER, 34° 12′; 74° 46′, in Kashmír, N. of Srinágger in the valley of Kashmír.

Loc. *Mean height of the village* . . . . . 5,197 ft. Schl., Rob.

7, Pistor. 1856, Oct. 17, 9h A.M. *A*. 24·906; 46·0; 55. Símla 23·264; 50·9; 94.

No. 647. DÁVER, 34° 34′·1; 74° 46′·0 ⚐, in Kashmír, Gurés valley, on the left bank of the Kishengánga.

Loc. 1) *Level of the Kishengánga* . . . . . 7,718 ft. Schl., Ad.

6, Adie. 1856, Oct. 4, 9h A.M. *A*. 22·673; 45·0; 47. Simla 23·237; 55·2; 87. Loc. corr. — 10 ft.

Loc. 2) *Upper limit of wallnuts, referred by aneroid to Dáver* 7,950 ft. Schl., Ad.

No. 648. Srinágger, 34° 4′·6; 74° 48′·5 E, in Kashmír, the capital of this province.

Loc. *Garden Shèkh Bagh* . . . . . 5,146 ft. Schl., A. and R.

1856.	Hour. A. M.	Srinágger.	Símla.	Per. Corr.	Height.	Mässúri.	Per. Corr.	Height.
	h m							
Sept. 25	10 0	24 839; 66·0; 64	23 181; 60 6; 86	+ 39	5,147	23·567; 65·3; 89	+ 29	5,130
„ 29	10 0	24·961; 61·9; 54	23·284; 60·6; 84	+ 39	5,143	23·670; 66·6; 82	+ 29	5,118
Oct. 1	10 0	24·985; 65·1; 42	23 328; 60·3; 71	+ 42	5,167	23·748; 64·4; 84	+ 31	5,186
„ 4	10 0	24·937; 59·9; 53	23 256; 57·6; 80	+ 42	5,151	23·642; 64·0; 84	+ 32	5,121
„ 6	10 0	24 890; 59·2; 54	23·201; 59 4; 86	+ 42	5,135	23 630; 66·7; 88	+ 31	5,157
„ 8	10 0	24·926; 60·1; 42	23 225; 55·8; 68	+ 42	5,132	23·678; 63·5; 89	+ 31	5,184
„ 9	8 25	24 943; 50 4; 60	23·288; 52·9; 61	+ 3	5,176			
„ 13	10 0	24 874; 55 0; 48	23 197; 55·8; 66	+ 42	5,164	23·599; 64·6; 63	+ 31	5,147
„ 14	10 0	24 914; 57 6; 62				23·674; 64·6; 76	+ 31	5,187
„ 15	8 0	24·937; 54 7; 49	23 272; 51·0; 52	− 16	5,132			
„ 20	9 0	24·835; 53 1; 67				23 583; 61·9; 48	+ 16	5,171
„ 21	9 0	24 914; 56·1; 40	23·233; 50 0; 53	+ 22	5,156	23·634; 58·5; 57	+ 17	5,142
„ 22	9 0	24·937; 50·2; 48	23·217; 50·2; 59	+ 23	5,124			
„ 23	9 0	24·926; 51·1; 47	23 233; 53·8; 66	+ 22	5,146	23·611; 62·6; 49	+ 17	5,102
„ 24	10 15	25 000; 50·2; 49	23·280; 56·8; 54	+ 42	5,135	23·674; 64·0; 50	+ 32	5,106
„ 25	9 37	25·063; 50·0; 49	23·328; 55·2; 53	+ 35	5,119			
„ 26	9 43	25 000; 51·1; 48	23·320; 55·0; 65	+ 36	5,176			
„ 27	9 0	25·060; 46·6; 59	23 335; 52 5; 84	+ 22	5,130			
„ 28	9 0	25 032; 52 5; 73	23 316; 54 0; 81	+ 23	5,122	23·721; 63·7; 67	+ 17	5,107
„ 29	9 0	25 040; 50·5; 46	23·331; 54·7; 76	+ 22	5,135	23·733; 64·6; 37	+ 17	5,117
„ 30	9 30	25 000; 49·8; 60	23·328; 56·7; 64	+ 32	5,182	23·729; 69·3; 37	+ 24	5,155

Results of previous observers:

Jacquemont . .	5,354 ft.	Hügel	5,818 ft.
Vigne.	5,000 „	Cunningham . .	5,300 „

No. 649. Nunevára Peak, 34° 33′; 74° 41′, in Kashmír, between Gurés and Srinágger.

Loc. *Top of the peak* . . . . . 11,961 ft. Schl., Ad.

6. Adie. 1856, Oct. 6, 10^{h} A. M. *B* = Símla; *C* = Mässúri.

A. 19·457; 48 4; 38. *B*. 23 201; 59 9; 86 = 11,921 ft. *C*. 23·626; 66·9; 89 = 12,000 ft.

A panorama was drawn by Adolphe from the Nunevára peak. See plates III. and V. of the panoramic profiles.

No. 650. GOGIPÁTRI MOUNTAIN, 33° 51′·7; 74° 39′·7, in Kashmír, S.W. of Srinágger, the capital of Kashmír . . . . . 7,766 ft. G. T. S.

No. 651. AKNÚR, 32° 56′; 74° 39′, in Jámu, on the right bank of the Chináb.

Loc. 1) *Sarái* . . . . . 1,146 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 5, 9h A.M. *B* = Simla; *C* = Mussúri.
A. 209°·59 Fahr.; 82·0; 80. *B.* 23·233; 62·6; 99 = 1,154 ft. *C.* 23·607; 61·0; 95 = 1,137 ft.

„ 2) *Level of the Chináb at Aknúr* . . . . . 1,103 ft. Schl., El.
= 43 ft. below the sarái; by aneroid.

„ 3) *Bágla hill, N. of Aknúr* . . . . . 2,796 „ Schl., El.
= 1,650 ft. above the sarái at Aknúr; by aneroid.

No. 652. LÁNKA ISLAND, 34° 22′·1; 74° 36′·4, in Kashmír, in the Vúller lake, N.W. of Srinágger, the capital of Kashmír.

Loc. 1) *Trigonometrical signal* . . . . . 5,187 ft. G. T. S.

„ 2) *Level of the Vúller lake* . . . . . 5,126 ft. Schl., Ad.
Referred by aneroid to Srinágger.

No. 653. TIKHIÁR PEAK, 33° 29′·9; 74° 36′·3, in Kishtvár-Kashmír, Pir Panjál range, forming the southern boundary of the valley of Kashmír . . . . . 15,305 ft. G. T. S.

This peak is visible from Sialkót in the Panjáb; but in the Nunevára panorama it forms no particular prominence above the crest surrounding. Schl., Ad.

No. 654. ALIABÁD PASS, 33° 36′; 74° 30′, in Kashmír, leading from Rajáuri to Kashmír over the western part of the Pir Panjál range.

Loc. 1) *Top of the pass* . . . . . 10,928 ft. Schl., El.

„ *ditto* . . . . . 11,970 „ Cunning.

1, Thermo-barom. 1856, Sept. 17, 1h P.M. *B* = Simla; *C* = Mussuri.
A. 192°·81 Fahr.; 51·2; 56. *B.* 23·189; 65·1; 92 = 10,950 ft. *C.* 23·535; 67·3; 86 = 10,906 ft.

„ 2) *Aliabád Sarái, on the north-eastern slopes of the Aliabád pass* . . . . . 9,700 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 18, 8h 30m A.M. *B* = Simla; *C* = Mussúri.
A. 195°·08 Fahr.; 57·2; 58. *B.* 23·233; 60·4; 96 = 9,665 ft. *C.* 23·670; 66·0; 73 = 9,735 ft.

Nos. 655-6. TÁTTA KÚTI PEAKS, in Kashmír-Rajáuri,
in the Pir Panjál range, forming the southern boundary of the valley of Kashmír.

No. 655. TÁTTA KÚTTI SOUTH PEAK ☩, 33° 44′·9; 74° 27′·1 . . 15,524 ft. G. T. S.

No. 656. TÁTTA KÚTTI NORTH PEAK (*y*☩), 33° 54′·4; 74° 24′·9 . . 15,133 ft. G. T. S.

In the Himálayan part of the Nunevára panorama the Tátta Kútti peaks are but secondary prominences of a ridge, the mean elevation of which reaches nearly 14,000 ft. Schl., Ad.

No. 657. DHARAMSÁLA, 33° 12′; 74° 27′, in Jámu, S.S.E. of Rajáuri.

Loc. *Mean height of the village* . . . . . 2,072 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 9, 5^h P.M. *A*. 207°·85 Fahr.; 82·8; 53. Símla 23·181; 66·6; 79.

No. 658. POSHÁNA, 33° 35′; 74° 25′, in Rajáuri, on the south-western slopes of the Aliabád pass.

Loc. *Mean height of the village* . . . . . 8,046 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 16, 4^h 30^m P.M. *B* = Símla; *C* = Mássúri.
A. 197·65 Fahr.; 66·2; 16. *B*. 23·131; 68·5; 84 = 8,055 ft. *C*. 23·501; 65·1; 90 = 8,037 ft.

No. 659. BARAMGÁLLA, 33° 33′; 74° 19′, in Rajáuri, S.W. of the Aliabád pass.

Loc. 1) *Mean height of the village* . . . . . 5,880 ft. Schl., El.

1, Thermo-baróm. 1856, Sept. 15, 1^h 45^m P.M. *B* = Símla; *C* = Massúri.
A. 201·53 Fahr.; 72·2; 48. *B*. 23·237; 66·4; 91 = 5,890 ft. *C*. 23·599; 63·3; 94 = 5,870 ft.

Loc. 2) *Rátanpur village* . . . . . 7,894 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 15, 10^h A.M. *B* = Símla; *C* = Mássúri.
A. 198·23 Fahr.; 59·2; 60. *B*. 23·292; 64·8; 92 = 7,896 ft. *C*. 23·678; 64·9; 87 = 7,892 ft.

No. 660. SÁYAL SÁVI, 33° 17′; 74° 19′, in Rajáuri, S.S.E. of the town of the same name.

Loc. *Dharamsála* . . . . . 2,660 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 10, 5^h P.M. *A*. 206°·76 Fahr.; 82·8; 56. Símla 23·142; 64·9; 86.

No. 661. RAJÁURI, 33° 20′; 74° 16′, in Rajáuri, the capital of this province.

Loc. *Saráí* . . . . . 3,035 ft. Schl., El.

1, Thermo-barom. 1856, Sept. 13, 12^h Noon. *A*. 206°·39 Fahr.; 81·6; 63. Símla 23·260; 65·1; 92.

No. 662. BARAMÚLA, 34° 7′; 74° 14′, in Kashmír, on the Jhílum, W. of Srinagger.

Loc. *Level of the Jhílum*. . . . . 5,102 ft. Schl., Rob.

8, Pistor. 1856, Nov. 4, 8h 30m A.M. *A.* 25·052; 42·3; 66. Símla 23 320; 55·0; 75.

No. 663. MARINÁG PEAK, 34° 38′·8; 74° 11′·3 ⅄, in Kashmír, in the range running along the left bank of the Kishengánga . . . . . 11,828 ft. G. T. S.

No. 664. KAJ NÁG PEAK (1 ⅄), 34° 13′·8; 74° 0′·8, in Kashmír, on the northern bank of the Jhílum, in the range between the Jhílum and Kishengánga. 14,438 ft. G. T. S.

A peak visible in the Himálayan part of the Nunevára panorama, 43 miles E. of the junction of the Jhílum and Kishengánga. Schl., Ad.

No. 665. CHÁKÓTRI, 34° 12′; 73° 59′, in Márri, on the left bank of the Jhílum.

Loc. *Mean height of the village* . . . . . 3,712 ft. Schl., Herm.

6, Adie. 1856, Nov. 8, 9h A.M. *A.* 26 355; 49 8; 53. Símla 23 316; 47·8; 63.

No. 666. SÁT-KŐLA PEAK, 34° 20′·7; 73° 57′·0 ⅄, in Kashmír, N. of the Jhílum, in the range between the Jhílum and Kishengánga . . . . . 14,039 ft. G. T. S.

It is on the north-eastern end of a tolerably well defined ridge parallel to the Kishengánga. Visible in the Nunevára panorama, Himálayan part. Schl., Ad.

No. 667. PŨCH PASS, 34° 3′; 73° 56′, in Kashmír-Rajáuri, S. of Úri, a fort on the left bank of the Jhílum.

Loc. 1) *Top of the pass*. . . . . 8,500 ft. Vig.

„ 2) *Hajipír, on the northern slopes of the Pũch pass near the top* . . . . . 8,390 ft. Schl., Man.

„ 3) *Kahúta, on the southern foot of the Pũch pass* . . . 4,630 ft. Schl., Man.

No. 668. BULEÁSSA, 34° 16′; 73° 56′, in Márri, on the left bank of an affluent of the Jhílum.

Loc. *Mean height of the village* . . . . . 3,781 ft. Schl., Rob

8, Pistor. 1856, Nov. 7, 9h A.M. *A.* 26·292; 51·1; 63. Símla 23·332; 50 9; 59.

No. 669. MÁLEKPUR PEAK (2 ⅄), 34° 21′·3; 73° 55′·9, in Kashmír, in the range between the Jhílum and Kishengánga, N.N.W. of the Kaj Nág peak. 14,338 ft. G. T. S.

No. 670. Pūch, 33° 50′; 73° 55′, in Rajāuri, below the southern foot of the Pūch pass.

Loc. *Mean height of the village* . . . . . 3,395 ft. Schl., Man.

Nos. 671-2. Ismáel de Dóri Peaks, in Kashmír,
in the range running along the left bank of the Kishengánga.

No. 671. Ismáel de Dóri South Peak (2 ♁), 34° 21′·3; 73° 54′·3 . 14,438 ft. G. T. S.

No. 672. Ismáel de Dóri North Peak, 34° 29′·8; 73° 54′·3 ♁ . 12,643 ft. G. T. S.

In the Nunevára panorama the South Peak is the westernmost object. Schl., Ad.

No. 673. Úri, 34° 6′; 73° 56′, in Kashmír, on the Jhílum, W. of Srinágger.

Loc. *Level of the Jhílum* . . . . . 3,952 ft. Schl., Rob.

8, Pistor. 1856, Nov. 6, 8h A.M. *A.* 26·099; 49·6; 42. Símla 23 296; 49·3; 69.

No. 674. Sohóra, 33° 40′; 73° 49′, in Rajáuri, on the left bank of the Pūch.

Loc. 1) *Level of the Pūch* . . . . . 2,745 ft. Schl., Man.

„ 2) *Hot spring, S.W. of Sohóra* . . . . . 2,200 „ Schl., Man.

No. 675. Kótli, 33° 30′; 73° 44′, in Rajáuri, on the left bank of the Pūch, but considerably above it.

Loc. *Mean height of the village* . . . . . 6,010 ft. Schl., Man.

No. 676. Kérri Panjál Pass, 34° 12′; 73° 43′, in Márri, between Chikár and Méra.

Loc. 1) *Top of the pass* . . . . . 6,919 ft. Schl., Herm.

6, Adie. 1856, Nov. 9, 5h P.M. *A.* 23 417; 47 5; 38. Símla 23·299; 55·0; 69.

„ 2) *Chikár village, on the north-eastern foot of the Kérri Panjál pass* . . . . . 5,127 ft. Schl., Ad.

6, Adie. 1856, Nov. 9, 1h P.M. *A.* 24 985; 65 1; 44. Símla 23 312; 51·8; 72.

„ 3) *Méra village, on the south-western foot of the Kérri Panjál pass* . . . . . 5,451 ft. Schl., Herm.

6, Adie. 1856, Nov. 10, 8h A.M. *A.* 24·760; 43 2; 38. Simla 23 332; 45·5; 85.

„ 4) *Level of the Agír near Méra* . . . . . 3,572 ft. Schl., Ad.

6, Adie. 1856, Nov. 16, 9h 15m A.M. *A.* 26 500; 52·2; 46. Símla 23·336; 48·7; 76.

No. 677. HÁTHI, 34° 14′; 73° 41′, in Márri, on the left bank of the Jhílum.

Loc. *Level of the Jhílum* . . . . . 2,879 ft. Schl., Ad.

6, Adie. 1856, Nov. 9ᵈ 8ʰ A.M. *A.* 27 193; 45·9; 59. Símla 23·303; 44·2; 77.

No. 678. HATHIÁN, 34° 16′; 73° 38′, in Márri, on the right bank of the Jhílum, E. of Mozăferabád.

Loc. *Level of the Jhílum* . . . . . 2,529 ft. Schl., Rob.

8, Pistor. 1856, Nov. 9, 9ʰ A.M. *A.* 27·548; 43·5; 85. Símla 23·268; 41·8; 77.

No. 679. LÁNGERPUR, 34° 21′; 73° 36′, in Márri, on the right bank of the Jhílum, E. of Mozăferabád.

Loc. *Mean height of the village* . . . . . 2,266 ft. Schl., Rob.

8, Pistor. 1856, Nov. 9, 12ʰ 30ᵐ P.M. *A.* 27·674; 61·8; 42. Símla 23·268; 52·9; 69.

No. 680. DÁNNA, 34° 6′; 73° 32′, in Márri, S. of the Jhílum.

Loc. 1) *Mean height of the village* . . . . . 5,128 ft. Schl., Ad

6, Adie. 1856, Nov. 10, 12ʰ 40ᵐ P.M. *A.* 24 997; 56·8; 30. Símla 23·316; 54·9; 65.

„ 2) *Dánna pass* . . . . . 5,432 ft. Schl., Herm

= 304 ft. above Dánna; by aneroid.

No. 681. MOZĂFERABÁD, 34° 22′·4; 73° 31′·2 E, in Márri, on the Kishengánga frontier town towards Hazára.

Loc. 1) *Mussălmán burial-ground* . . . . . 2,221 ft. Schl., Rob.

8, Pistor. 1856, Nov. 10, 9ʰ A.M. *A.* 27·847; 51 1; 63. Símla 23 336; 48·2; 74.

„ *Undefined* . . . . . 2,166 ft. Cunning.

„ 2) *Level of the Kishengánga* . . . . . 2,164 ft. Schl., Rob.

Directly measured.

No. 682. BIRÓT, 33° 59′; 73° 31′, in Márri, N. of the sanitarium.

Loc. 1) *Mean height of the village* . . . . . 3,586 ft. Schl., Herm.

6, Adie. 1856, Nov. 11, 2ʰ P.M. *A.* 26·449; 67 8; 19. Símla 23·343; 56·5; 67. + 35 ft.

Loc. 2) *Level of the Jhílum near Bărkót* . . . . . 1,858 ft. Schl., Ad.

6, Adie. 1856, Nov. 11, 9ʰ A.M. *A.* 28·264; 46·4; 86. Símla 23·343; 46·0; 75.

No. 683. RÉVAT, 33° 52′; 73° 30′, in Márri, N.E. of the sanitarium of Márri.

Loc. *Mean height of the village* . . . . . 5,990 ft. Schl., Herm.

6, Adie. 1856, Nov. 12, 9h A.M. *A.* 24 241; 51·6; 11. Símla 23 312; 47·1; 76.

No. 684. DOP PASS, 34° 23′; 73° 28′, in Márri, between Mozáferabád and Gárhi Havibúlla.

Loc. *Top of the pass* . . . . . 4,491 ft. Schl., Rob.

8, Pistor. 1856, Nov. 11, 4h 30m P.M. *A.* 25 563; 63·7; 21. Símla 23·324; 57 2; 66

No. 685. PAJVÁR, 33° 37′; 73° 26′, in Márri, near the right bank of the Jhílum.

Loc. *Level of the Jhílum* . . . . . 1,450 ft. Schl., Man.

No. 686. ÚTER LÍSSA, 31° 20′; 73° 26′, in Márri, S.E. of Gárhi Havibúlla.

Loc. *Mean height of the village* . . . . . 3,633 ft. Schl., Rob.

6, Adie. 1856, Nov. 12, 12h 15m P.M. *A.* 26 363; 66 6; 16. Símla 23 324; 54 1; 58.

No. 687. GÁRHI HAVIBÚLLA, 34° 23′; 73° 24′, in Márri, W. of Mozáferabád.

Loc. 1) *Bángalo* . . . . . 2,678 ft. Schl., Rob.

8, Pistor 1856, Nov 12, 6h A.M. *A.* 27·367; 40 6; 84. Símla 23 296; 14·1; 77. – 43 ft.

„ 2) *Spring at Róho village, S.W. of Gárhi Havibúlla* . . 2,924 ft. Schl, Rob.

8, Pistor 1856, Nov 12, 7h A.M. *A.* 27 115; 12·1; 85. Símla 23 303; 15 9, 76 – 41 ft.

No. 688 MÁRRI, 33° 51′·0; 73° 22′·7 E, in Márri, a sanitarium 32 miles N. of Raulpíndi.

Loc. 1) *Southern side of the Station* . . . . . 6,963 ft. Schl., Herm. and Ad.

1855	Hour. A.M.	Márri.	Símla.	Per. Corr.	Height.
	h				
Nov. 13	8	23 146; 49 1; 29	23 359; 45·9; 53	– 2	6,954
„ 13	10	23 151, 52·5; 23	23 367; 19 5; 80	+ 2	6,958
„ 14	8	23 126, 49 1, 29	23 355; 46 8; 75	– 2	6,972
„ 14	9	23 138, 51 6; 19	23 351, 18 6, 76	0	6,956
„ 14	10	23 138; 53 1; 27	23 347; 50 1; 76	+ 2	6,952
„ 15	8	23 110, 18 9; 30	23·347; 47 8; 72	– 1	6,983
„ 15	10	23 417 51 6, 39	23 339, 51 8, 72	+ 2	6,967

Loc. 2) *Observatory Hill, N. of the Station* . . . . . 7,199 ft. Schl., Herm.

6, Adie. 1856, Nov. 14, 8h A.M. *A.* 23·229; 52·0; 30. Márri 23·426; 49 1; 29. + 5 ft.

„ 3) *Highest point near Márri* . . . . . 7,260 ft. G. T. S.

No. 689. MÁNGUL, 34° 14′; 73° 8′, in Marri, between Mansêra and Abbotabád.

Loc. *Mean height of the village* . . . . . 4,024 ft. Schl., Rob.

2, Pistor. 1856, Nov. 13, 11h A.M. *B* = Simla; *C* = Márri;
A. 26 044; 65·1; 28. *B.* 23 355; 51·3; 74 = 4,021 ft. *C.* 23 412; 53 0; 74 = 4,026 ft

---

No. 690. ABBOTABÁD, 34° 10′; 73° 9′, in Márri, a small military station, N.N.E. of Chámba.

Loc. *Kachérri* . . . . . 1,055 ft. Schl., Rob

8, Pistor. 1856, Nov. 14, 9h A.M. *B* = Simla; *C* = Márri.
A. 26·071; 47·8; 73. *B.* 23·355; 46·8; 75 = 4,061 ft. *C.* 23 426; 49 1; 70 = 4,046 ft.

No. 691. CHÁMBA, 34° 1′; 72° 58′, in Márri, on the left bank of the Dor, S. of Mansêra and N.N.E. of Hássan Ábdul.

Loc. *Mean height of the village* . . . . . 2,197 ft. Schl., Rob.

8, Pistor. 1856, Nov. 14, 1h P.M. *A.* 27 780; 70 2; 34. Simla 23 336; 55 9; 58. + 49 ft.

Before concluding this area, we add the heights of Kănáur; the powerful crest to its south, and the circumstance of its principal connection with the southern Himálayan provinces being only effected by the narrow outlet of the Sátlej valley above Vángtu, induced us not to mix up its heights indiscriminately with those of the Himálaya in general. Some geographers even considered Kănáur topographically to form the southernmost part of Tíbet; but it is as coherent with the Himálayan provinces by the ramifications of its mountain systems, as it is analogous by its hypsometrical features.

The following heights of Kănáur succeed each other from East to West.

No. 692. KIÓBRANG (KEOOBRUNG) PASS, 31° 36′; 78° 56′, in Kánáur, S. of the Sátlej.

Loc. *Top of the pass* . . . . . 18,313 ft. Ger

No. 693. TÓDUNG PEAK (*u*), 31° 23′·8; 78° 46′·5, in Kanáur, near the source of the Tódung Gar, an affluent of the Sátlej . . . . . 18,997 ft. G. T. S.

Nos. 694-5. Rúkor Peaks, in Kănáur,
N. of the Tágla Gar, an affluent of the Sátlej.

No. 694. Rúkor East Peak No. I. ♁, 31° 38′·5; 78° 40′·2 . . 19,746 ft. G. T. S.

No. 695. Rúkor West Peak (W ♁), 31° 38′·9; 78° 38′·4 . . 20,645 ft. G. T. S.

See the diagrams added to the Kidarkánta panorama. Schl., Ad.

No. 696. Rúkor Pass, 31° 37′; 78° 40′, in Kanáur, a small lateral pass, E. of the Rothíngi pass.

Loc. *Top of the pass* . . . . . 13,985 ft. I. A. 65.
" *ditto* . . . . . 14,002 " Ger.

No. 697. Námgia, 31° 48′; 78° 39′, in Kanáur, on the left bank of the Sátlej.

Loc. *Mean height of the village* . . . . . 8,371 ft. Herb. and Hodg.

No. 698. Rothíngi Peak (F ♁), 31° 31′·9; 78° 38′·2, in Kănáur, near the source of the Rothíngi, an affluent of the Tágla Gar . . . . . 19,205 ft. G. T. S.

No. 699. Mūd, 31° 50′; 78° 38′, in Kanáur, near the confluence of the Pin (Spiti) with the Sátlej.

Loc. *Trigonometrical Station* . . . . . 12,807 ft. I. A. 65.

No. 700. Dábling, 31° 45′; 78° 37′, in Kànáur, on the left bank of the Sátlej.

Loc. *Mean height of the village* . . . . . 9,311 ft. Herb. and Hodg.
" *ditto* . . . . . 9,390 " Ger.
" *ditto* . . . . . 9,987 " J. A. Herbert.

No. 701. Chap, or Khab, 31° 47′; 78° 37′, in Kànáur, on the confluence of the Sátlej and Spíti.

Loc. 1) *Level of the confluence* . . . . . 8,038 ft. Herb. and Hodg.
" 2) *Mean height of the village* . . . . . 8,494 ft. Ger.

No. 702. Úrcha Peak (Q ♁), 31° 40′·1; 78° 36′·7, in Kănáur, N.E. of Úrcha, on the Tágla Gar, an affluent of the Sátlej. . . . . 20,641 ft. G. T. S.

No. 703. △ KIUKÚCHI, 31° 27′; 78° 36′, in Kănáur, on the north-eastern foot of the Chárang pass.

Loc. *Encamping ground* . . . . . 12,524 ft. Ger.
„ *ditto* . . . . . 12,457 „ I. A. 65.

No. 704. KÚNU, 31° 29′; 78° 37′, in Kanáur, N.N.E. of the Chárang pass.

Loc. *Mean height of the village* . . . . . 11,683 ft. I. A. 65.
„ *ditto* . . . . . 11,727 „ Ger.

No. 705. LÁMBAR PEAK (No. 5 ⛄), 31° 32′·6; 78° 34′·1, in Kănáur, N.E. of Lámbar, on the Tódung Gar . . . . . 20,380 ft. G. T. S.

In the Kidarkánta panorama this peak is seen to the left of the Dónkiar mountain. Schl., Ad.

No. 706. ÚRCHA, 31° 38′; 78° 37′, in Kănáur, on the Tágla Gar, an affluent of the Sátlej.

Loc. *Mean height of the village* . . . . . 11,296 ft. I. A 65.
„ *ditto* . . . . . 11,189 „ Ger.

No. 707. MÓRANG PEAK (*P*, or No. 3 ⛄), 31° 34′·9; 78° 13′·6, in Kanáur, E. of Mórang, a fort on the left bank of the Sátlej . . . . . 20,513 ft. G. T. S.

See the diagrams added to the Kidarkánta panorama. Schl., Ad.

No. 708. HÁNGO, 31° 50′; 78° 33′, in Kănáur, W. of the Pin, on the northern foot of the Hángrang pass.

Loc. *Mean height of the village* . . . . . 11,468 ft. Ger.
„ *ditto* . . . . . 11,812 „ J. A. Herbert

No. 709. HÁNGRANG PASS, 31° 47′·7; 78° 30′·6 ⛄, in Kanáur, W. of the Sátlej, leading over to Spíti.

Loc. *Top of the pass* . . . . . 14,530 ft. G. T. S.
„ *ditto* . . . . . 14,710 „ Herb. and Hodg.
„ *ditto* . . . . . 14,837 „ Ger.

No. 710. NÍSANG, 31° 39′; 78° 30′, in Kănáur, E. of the Sátlej, on one of its affluents, the Tágla Gar.

Loc. 1) *Mean height of the village* . . . . . 10,148 ft. Schl., Hark.
„ *ditto* . . . . . 10,165 „ Ger.

11, Pistor. 1857, Sept. 3, 6h A.M. *A.* 20·717; 52·9; 70. Simla 23·106; 59·2; 99. + 60 ft.

Loc. 2) *Level of the Túgla Gar* . . . . . 9,294 ft. Ger.

No. 711. GRÁMANG, or TÁNGI, 31° 32′; 78° 29′, in Kánáur, on the Tódung, an affluent of the Satlej . . . . . 9,428 ft. Ger.

No. 712. KIUKÚCHI PEAK (*i*, or *k* ♁), 31° 27′·2; 78° 28′·1, in Kánáur, W. of the Tódung Gar, an affluent of the Sátlej. . . . . 20,824 ft. G. T. S.

Nos. 713-14. CHÁRANG PEAKS, in Kanáur,
in the range between the Báspa and Tódung Gar.

No. 713. CHÁRANG NORTH PEAK (*l* ♁), 31° 25′·9; 78° 27′·2 . . 20,254 ft. G. T. S.

No. 714. CHÁRANG SOUTH PEAK (*n* ♁), 31° 25′·4; 78° 26′·3 . . 19,800 ft. G. T. S.

No. 715. TÚNGRANG PASS, 31° 37′; 78° 27′, in Kánáur, leading from the Tódung to the Sátlej valley . . . . . 13,739 ft. Ger.

No. 716. SÚNGNAM, 31° 46′; 78° 27′, in Kanáur, on an affluent of the Sátlej.

Loc. *Mean height of the village* . . . . . 9,020 ft. Herb. and Hodg.

No. 717. RÍSPA, 31° 34′; 78° 26′, in Kanáur, near the left bank of the Sátlej.

Loc. *Mean height of the village* . . . . . 8,079 ft. Schl., Hark.

„ *ditto* . . . . . 8,046 „ Ger.

11, Pistor 1857, Sept 1, 7h A.M. *A.* 22·308; 71·4; 11. Simla 23·123; 60·6; 98. + 10 ft.

No. 718. JÁNGI, 31° 36′; 78° 26′, in Kanáur, on the right bank of the Sátlej, N.E. of Chíni.

Loc. *Mean height of the village* . . . . . 8,905 ft. Ger.

„ *Undefined* . . . . . 8,627 „ J. A Herbert.

No. 719. CHÍLDING KÓNA PASS, 31° 37′; 78° 26′, in Kánáur, leading from Mórang to Nísang. . . . . 12,860 ft. Herb. and Hodg.

No. 720. KÁNUM, 31° 40′; 78° 26′, in Kánáur, on the right bank of the Sátlej.

Loc. *Mean height of the village* . . . . . 8,998 ft. Herb. and Hodg.

No. 721. LÁBRANG, 31° 40′; 78° 25′, in Kănáur, on the right bank of the Sátlej, N.E. of Chíni . . . . . 9,296 ft. Ger.

No. 722. RÚNANG PASS, 31° 43′; 78° 25′, in Kanáur, N. of Lípi.

Loc. *Top of the pass* . . . . . 14,508 ft. Ger

No. 723. ÁKPA, 31° 35′; 78° 24′, in Kanáur, on the right bank of the Sátlej, N.E. of Chíni . . . . . 8,450 ft. Ger.

No. 724. LÍPI, 31° 39′; 78° 24′, in Kánáur, on an affluent of the Sátlej, N. of Ákpa.

Loc. 1) *Mean height of the village* . . . . . 8,723 ft. Ger.

„ 2) *Chángrang pass, S. of Lípi* . . . . . 9,527 „ Ger.

No. 725. RÁRANG, 31° 36′; 78° 22′, in Kanáur, near the right bank of the Sátlej, N.E. of Chíni.

Loc. *Mean height of the village* . . . . . 9,022 ft. Ger.

„ *ditto* . . . . . 9,117 „ J. A. Herbert

Nos. 726-7. RÁLDANG PEAKS, in Kanáur,
S.W. of the confluence of the Sátlej and Tódung Gar.

No. 726. RÁLDANG SOUTH PEAK (*S* ☩), 31° 29′·6; 78° 21′·6 . . 21,250 ft. G. T. S.

Herbert and Hodgson obtain for this peak a height of 21,111 ft.

No. 727. RÁLDANG NORTH PEAK (*R* ☩), 31° 31′·2; 78° 20′·9 . . . 19,866 ft. G. T. S.

The Ráldang peaks are not visible in the Kidarkánta panorama, but they are contained in the respective hypsometrical diagram. Schl., Ad.

No. 728. JASKÁNGRANG MOUNTAIN, 31° 33′; 78° 21′, in Kanáur, E. of Chíni.

Loc. *Top of the mountain* . . . . . 14,523 ft. G. T. S.

No. 729. IGASÁRANG MOUNTAIN, 31° 38′; 78° 20′, in Kanáur, 4 miles N. of the Sátlej.

Loc. *Top of the mountain* . . . . . 14,319 ft. G. T. S.

No. 730. PUÁRI, 31° 33′; 78° 18′, in Kanáur, on the left bank of the Sátlej, N. of Chíni.

Loc. *Level of the Sátlej* . . . . . 6,555 ft. Ger.

No. 731. PÁNGI, 31° 35′; 78° 18′, in Kănáur, near the right bank of the Sátlej, N. of Chíni.

Loc. 1) *Mean height of the village* . . . . . 9,197 ft. Ger.

„ 2) *Level of the Málgan, near Pángi* . . . . . 8,171 ft. Ger.

Nos. 732-3. CASTLE ROCK PEAKS, in Kanáur, in the ridge between the Báspa and Sátlej.

No. 732. CASTLE ROCK PEAK $X\dagger$, 31° 27′·5; 78° 17′·4 . . . 18,048 ft. G. T. S.

No. 733. CASTLE ROCK PEAK $D\dagger$, 31° 27′·9; 78° 17′·3 . . . 18,012 ft. G. T. S.

In the Kidarkánta panorama, these peaks are seen as a double-pointed summit, but with a very little elevation above the surrounding crests. Schl., Ad.

No. 734. KÁSHBIR FORT, 31° 34′; 78° 17′, in Kanáur, near Chíni.

Loc. *Fort* . . . . . 9,284 ft. Ger.

No. 735. PÍRI PEAK, 31° 37′; 78° 16′, in Kánáur, 3 miles N. of the Sátlej.

Loc. *Top of the peak* . . . . . 14,152 ft. G. T. S.

No. 736. CHÍNI, 31° 31′·9; 78° 14′·3$\dagger$, in Kănáur, near the right bank of the Sátlej.

Loc. *Staff near the village* . . . . . 9,096 ft. G. T. S.

No. 737. BÁITART MOUNTAIN, 31° 28′; 78° 14′, in Kănáur, 2 miles N. of the Báspa, and S. of the Sátlej . . . . . 13,709 ft. G. T. S.

No. 738. RÓGI, 31° 31′; 78° 14′, in Kănáur, near the right bank of the Sátlej, a few miles S.W. of Chíni.

Loc. *Mean height of the village* . . . . . 9,096 ft. Ger.

„ *ditto* . . . . . 9,226 „ J. A. Herbert

No. 739. RAKCHÓRA PEAK, 31° 32′; 78° 13′, in Kanáur, N.W. of Chíni.

Loc. *Top of the peak* . . . . . 14,509 ft. G. T. S.

No. 740. BRUÁNG, or BÁRANG, 31° 28′; 78° 11′, in Kănáur, N.E. of the Buránda, or Bruáng pass.

Loc. 1) *Mean height of the village* . . . . . 7,411 ft. Ger.

Loc. 2) *Bridge of spars (Sánga) across the Báspa, N.E. of Bruáng* . . . . . 5,968 ft. Ger.

„ 3) *Level of the confluence of the Báspa and Sátlej* . . . 5,946 „ Ger.

No. 741. SÁPNI MOUNTAIN, 31° 29′; 78° 9′, in Kánáur, 2 miles W. of the confluence of the Sátlej with the Báspa . . . . . 12,716 ft. G. T. S.

No. 742. MÍRU, 31° 32′; 78° 9′, in Kánáur, 3 miles N. of the Sátlej.

Loc. *Mean height of the village* . . . . . 8,550 ft. Ger

„ *ditto* . . . . . 8,687 „ J. A. Herbert.

No. 743. MÁLGAN PEAK (△), 31° 38′·1; 78° 8′·0, in Kanáur, in the ridge between the Málgan and Kózhang . . . . . 19,494 ft. G. T. S

No. 744. RÚSRANG MOUNTAIN, 31° 32′; 78° 5′, in Kanáur, 2 miles N. of the Sátlej, W. of Chíni . . . . . 11,930 ft. G. T. S

No. 745. TÁRI, or BHABÉH PASS, 31° 43′; 78° 1′, in Kanáur-Spíti, leading from Kanaur to Spíti.

Loc. 1) *Top of the pass* . . . . . 15,942 ft. Schl., Herm

„ *ditto* . . . . . 15,282 „ Maclagan.

1, Greiner. 1856, June 11, 12h 30m P.M.

A. 16·674; 33·3; 40. Símla 23 106; 61·2; 95 = 15,939 ft. Massúri 23·496; 62·8; 90 = 15,944 ft.

Loc. 2) *Upper limit of shrubs on the southern slopes of the Tári pass* . . . . . 11,842 ft. Schl., Herm.

1, Greiner. 1856, June 10, 12h Noon.

A. 19 509; 58·6; 63. Símla 23 119; 68·5; 76 = 11,849 ft. Massúri 23 500, 65·8; 91 = 11,835 ft.

Loc. 3) *Upper limit of trees on the southern slopes of the Tári pass* . . . . . 11,200 ft. Schl., Herm

= 642 ft. below the upper limit of shrubs; by aneroid.

„ 4) △ *Tibet Maidán, on the northern slopes of the Tári pass*. . . . . 12,845 ft. Schl., Herm.

1, Greiner. 1856, June 12, 8h 30m A.M.

A. 18 701; 46 2; 40. Símla 23 060; 59·2; 93 = 12,828 ft. Massúri 23 496, 57 0, 99 = 12,861 ft

No. 746. DÚTRAN, 31° 35′; 78° 0′, in Kánáur, left bank of the Vángar, an affluent of the Sátlej.

Loc. *Mean height of the village* . . . . . 7,378 ft. Schl., Herm.

1, Greiner. 1856, June 8, 11h A.M. *A.* 22·890; 75·4; 75. Símla 23 146; 73·4; 69.

No. 747. GRÁMANG, 31° 36′; 78° 0′, in Kánáur, left bank of the Vángar, an affluent of the Satlej.

Loc. *Mean height of the village* . . . . . 7,426 ft. Schl., Herm.

1, Greiner. 1856, June 9, 7h A.M. *A.* 22 863; 64 2; 100. Símla 23 166; 59·5; 80.

No. 748. BHÓSLEH MOUNTAIN, 31° 30′; 77° 51′, in Kánáur, E. of the Sátlej and of Rámpur . . . . . 12,743 ft. G. T. S.

No. 749. KÚA MOUNTAIN, 31° 38′; 77° 50′, in Kanáur, about 8 miles N. of the Sátlej.

Loc. *Top of the mountain* . . . . . 13,281 ft. G. T. S.

Nos. 750-5. TÁRI, or BHABÉH PEAKS, in Kánáur-Spíti.

No. 750. TÁRI PEAK No. 2 ♁, 31° 42′·8; 77° 44′·0 . . . . . 18,626 ft. G. T. S.

No. 751. TÁRI PEAK No. 3 ♁, 31° 41′·4; 77° 53′·5 . . . . . 18,445 ft. G. T. S.

No. 752. TÁRI PEAK β ♁, 31° 43′·7; 77° 50′·3 . . . . . 17,244 ft. G. T. S.

No. 753. TÁRI PEAK δ ♁, 31° 41′·0; 77° 56′·5 . . . . . 17,947 ft. G. T. S.

No. 754. TÁRI PEAK ε ♁, 31° 41′·3; 78° 2′·0 . . . . . 17,558 ft. G. T. S.

No. 755. TÁRI PEAK x ♁, 31° 42′·4; 77° 45′·4 . . . . . 17,471 ft. G. T. S.

APPENDIX TO AREA VIII.

Nos. 756-8. Malári Peaks, in Garhwál.

No. 756. Malári East Peak, 30° 45′; 79° 32′ . . . 19,600 ft. Strach.

No. 757. Malári Central Peak, 30° 46′; 79° 29′ . . 20,500 ft. Strach.

No. 758. Malári West Peak, 30° 46′; 79° 28′ . . . 21,200 ft. Strach.

They are distinctly visible as well defined peaks in the Bóko La panorama. Schl., Ad.

No. 759. Sársútti Peak, 30° 49′; 79° 22′, in Garhwál, S.E. of the Ibi Gámin peak.

Loc. *Top of the peak* . . . . . 23,900 ft. Strach.

Visible as a broad peak in the Bóko La panorama. Schl., Ad.

Nos. 760-1. Ibi Gámin Peaks, in Garhwál-Gnári Khórsum.

No. 760. Ibi Gámin East Peak, 30° 52′; 79° 22′ . . . 24,200 ft. Strach.

No. 761. Ibi Gámin West Peak, 30° 54′; 79° 19′ . . . 24,000 ft. Strach.

These peaks are well visible in the Bóko La panorama. Schl., Ad.

PART IV.

HEIGHTS DETERMINED IN TÍBET,

AND SECTIONS ACROSS THE

CHAINS OF THE KARAKORÚM AND KUENLÚEN.

AREA IX., X., AND XI.

As the hypsometrical conditions of these three areas are generally analogous, and for two of them, at least, we are able to present but comparatively few data, a separate discussion of their characteristics would be altogether superfluous. The following remarks have reference, therefore, to the three divisions combined.

The territories comprised in these areas are the whole of Western Tibet, including the western parts of two of the three principal mountain ranges of High Asia, the Karakorúm, and Kuenlúen.

In reference to its hypsometrical features, this region may well be considered as one of the most interesting parts of our globe. There are peaks to be seen rivalling in height the lofty Kanchinjínga, which was considered till recently as the inferior only of Gaurisánkar. Some of the valleys show an average elevation to be found nowhere else; and large plateaux—not met with at all in the Himálayan Proper—are of no rare occurrence even at altitudes where they are not usually found in any other part of the globe. Another characteristic feature, in which the Himálaya, with a few insignificant exceptions, is entirely wanting, consists in the numerous lakes of the region, some of them lying at elevations of 14,000 or 15,000 feet. One of the highest of these lakes, called the Tsomognalarí, covers an area of more than 250 square miles.

From a comparison with the two preceding areas, in which Himálayan heights are given, it will appear, that, though the mean height of *peaks* in the Himálaya exceeds that of the peaks in the Karakorúm, yet the mean general elevation of the *crests* and *passes* is decidedly greater for the latter. To this conclusion we are already able to arrive, notwithstanding that our general knowledge of the hypsometrical conditions of the Karakorúm and Kuenlúen must be considered as yet very incomplete. The

difficulties in the way of more accurate information in these parts are at once political and natural. For, not only is the country jealously guarded against the intrusion of strangers, thus necessitating a recourse to the strictest disguise on the part of the traveller, but from the general great elevation of the land, the air is so rarefied and bleak, as to place both the bodily and mental powers of the observer under a considerable disadvantage.

In our subsequent discussions on the extreme limits of height in reference to habitations, snow-lines, vegetations, &c., it will be found that the great mass of our data are derived from these three areas alone. (See part V.)

For our heights in Turkistán we have no data whatever for comparison. However, the circumstances under which they were obtained may be considered particularly favourable, as we were fortunate enough, not only to make them at the fittest season of the year, but also to calculate them from corresponding stations exceedingly well situated for the purpose; the importance of hypsometrical materials for these regions in particular, having induced us to make such arrangements in the disposition of our establishment as were suitable to this end.

At the conclusion of this chapter we have ventured to give approximate values for the heights of Élchi, Yárkand, and Káshgar, though we may now indulge in the hope that more definite results will soon be arrived at by the well known scientific members of the mission to Central Asia, which is to start under the direction of Captain Smyth in the early part of the ensuing year.

AREA IX.

CENTRAL CHAIN OF WESTERN TÍBET.

No. 1. Gúrla, or Mandhátа Peak, 30° 27′; 81° 15′, in Gnári Khórsum, S. of the Mansaráuer lake . . . . . 25,200 ft. Strach.

Indistinctly visible in the Gunshankár panorama as the easternmost peak. Schl., Ad.

No. 2. Tíse Peak, 31° 4′; 81° 11′, in Gnári Khórsum, N. of the Mansaráuer lake.

Loc. *Top of the peak* . . . . . 22,000 ft. Strach.

A steep, well defined peak in the Gunshankár panorama. Schl., Ad.

No. 3. GUNSHANKÁR PEAK, 31° 23′·5; 80° 18′·0 E, in Gnári Khórsum, situated in the range between the Sátlej and Indus.

Loc. 1) *Top of the peak* . . . . . 19,699 ft. Schl., Rob.

8, Thermo-barom. 1855, July 29, 3h P.M.

A. 178°·13 Fahr.; 49·6; 17. Mässúri 23·417; 67·6; 93 = 19,693 ft. Símla 23·040; 67·6; 93 = 19,704 ft.

Loc. 2) *Snow limit on the western slopes of the Gunshankár peak* . . . . . 18,665 ft. Schl., Rob.

8, Thermo-barom. 1855, July 29, 6h P.M. *A.* 179°·62; 39·0; 40. Mässúri 23 454; 67·1; 91.

„ 3) *Snow limit on the northern slopes of the Gunshankár peak* . . . . . 18,010 ft. Schl., Ad.

Trigonometrically measured.

„ 4) *Highest phanerogamic plants, on the western slopes of the Gunshankár peak* . . . . . 19,237 „ Schl., Rob.

= 572 ft. above the limit of snow; by aneroid.

„ 5) *Upper limit of shrubs, on the western slopes of the Gunshankár peak* . . . . . 17,313 „ Schl., Ad.

No. 4. CHÁKO LA PASS, 31° 23′·9; 80° 11′·0 E, in Gnári Khórsum, on the ridge between the Indus and Sátlej.

Loc. 1) *Top of the pass* . . . . . 17,561 ft. Schl., Rob.

8, Thermo-barom. 1855, July 30, 11h A.M.

A. 181°·68 Fahr.; 51·8; 47. Mässúri 23·457; 66·2; 94 = 17,562 ft. Símla 23·052; 67·8; 94 = 17,560 ft.

In the Tóling Dóra panorama the direction of the pass is visible. Schl., Ad.

Loc. 2) *Usual encamping ground at the south-western foot of the pass* . . . . . 16,197 ft. Schl., Rob.

8, Thermo-barom. 1855, July 26, 9h A.M. *A.* 183°·79 Fahr.; 46·6; 81. Símla 23·063; 64·8; 96

No. 5. CHÍBLEN PEAK, 31° 29′; 80° 10′, in Gnári Khórsum, N.N.W. of the Cháko La pass . . . . . 20,500 ft. Strach.

We have given to this peak, for which the height only is mentioned by Strachey, the name by which it is known to the Hunías. The peak is visible in the Tóling panorama as a prominent object. Schl., Ad

No. 6. BÓKO LA PASS, 31° 35′; 80° 2′, in Gnári Khórsum, on the ridge between the Sátlej and Indus.

Loc. 1) *Southern foot of the pass* . . . . . 16,687 ft. Schl., Rob.

6, Adie. 1855, Sept. 10, 10h A.M.

A. 16·382; 45 7; 28. Mässúri 23·589; 65 6; 92 = 16.701 ft. Símla 23 193; 63 1; 90 = 16,673 ft.

Loc. 2) *Top of the pass* . . . . . ab. 18,450 ft. Schl., Ad.
Approximatively determined.

„ 3) *Plateau-like surface of the Sátlej valley above* △ *Kióm* 15,184 ft. Schl., Ad.

6, Adie. 1855, Sept. 10, 2h P.M.
A. 17 366, 58 6, 20. Símla 23 185; 65·5; 88 = 15,183 ft. Mássúri 23·568; 66·4; 91 = 15,185 ft.

From the Bóko La pass a panorama was drawn by Adolphe; see the Panoramic Profiles, plate No. IV. The direction of the pass is visible both in the Tóling Dóra and the Nélong panorama. Schl., Ad.

No. 7. Sásser Pass, 35° 6′·0; 77° 27′·6 E, in Núbra, on the summer route from Ladák to Yárkand.

Loc. 1) *Top of the pass* . . . . . 17,753 ft. Schl., Rob.
„ *ditto* . . . . . 17,500 „ Thoms.

5, Thermo-barom. 1856, Sept. 8, 10h A.M. *B* = Leh; *C* = Símla; *D* = Mássúri. Loc. corr. = 3 ft.
A. 181° 13 Fahr.; 30 6, 42. *B.* 19 713; 66 0; 8 = 17,790 ft. *C.* 23·154; 65 1; 92 = 17,710 ft.
D. 23 599; 64·4; 96 = 17,760 ft.

Loc. 2) *Lateral ridge of the Sásser peak, E. of Sásser pass* . 19,189 ft. Schl., Herm.

1, Greiner. 1856, Aug. 3, 12h 30m P.M. *B* = Mássúri; *C* = Símla; *D* = Leh.
A. 14·981; 56 8; 16. *B.* 23 500; 64·4; 98 = 19,216 ft. *C.* 23·060; 63 9; 96 = 19,144 ft.
D. 19·662; 73 9; 38 = 19,207 ft.

Here we put up a theodolite, and erected a flag. (See plate No. VII. of the Atlas of Panoramas and Views.)

Loc. 3) *Highest point reached on the rocks above the flag* . . . 20,120 ft. Schl., Herm.

Measured by the theodolite. The point reached was not the extreme top of the peak which is visible on the plate as a gently inclined snow-pyramid.

Loc. 4) △ *Sásser, a halting place, surrounded by a stone wall, on the northern foot of the Sásser pass* . . . . . 15,339 ft. Schl., Rob.
„ *ditto* . . . . . 15,400 „ Thoms.

5, Thermo-barom. 1856, Aug. 4 and Sept. 8. *B* = Leh.
7h 0m P.M. *A.* 185° 33 Fahr.; 49 5; 40. *B.* 19·685; 72 3; 26 = 15,357 ft.
7h 30m A.M. „ 185° 29 „ ; 13·2; 21. „ 19·725; 55·9; 19 = 15,335 „ Símla 23·170; 62 1; 93 = 15,325 ft.

Here is also the upper limit of shrubs.

Loc. 5) △ *Pantángsa, a halting place on the southern side of the Sásser pass* . . . . . 14,644 ft. Schl., Rob.

1, Greiner. 1856, Aug. 1, 4h P.M. *B* = Mássúri; *C* = Símla.
A. 17 607; 66·9; 3. *B.* 23 438; 63 1; 90 = 14,660 ft. *C.* 23 024; 63 3; 95 = 14,628 ft.

Loc. 6) △ *Skiangbóche, above* △ *Pantángsa, and lower end of the Sásser glacier* . . . . . 15,659 ft. Schl., Rob.

= 1,015 ft. above △ Pantángsa; by aneroid.

No. 8. LÁRIMO PEAK, 34° 8′·4; 77° 15′·9 E, in Ladák, 6,718 ft. N. 86° 33′ 46″ E. of Leh, the capital of Ladák.

Loc. *Top of the peak* . . . . . 13,293 ft. Schl., Rob.

Trigonometrically measured from Leh. A panorama was drawn from Lárimo by Hermann. See panoramic profiles, plate No. VI.

No. 9. LAÓCHE PASS, 34° 14′·9; 77° 14′·4 E, in Ladák-Núbra, leading from Leh to Núbra (Indus to the Shayók valley).

Loc. 1) *Top of the pass* . . . . . 17,911 ft. Schl., Rob

„ *ditto* . . . . . 17,600 „ Thoms.

5, Thermo-barom. 1856, Sept. 12, 1h P.M. *B* = Leh; *C* = Símla; *D* = Massúri.
A. 181°·04 Fahr.; 41·2; 10. *B*. 19·705; 61·2; 11 = 17,866 ft. *C*. 23 193; 64 0, 91 = 17,919 ft.
D. 23·607; 64 8; 90 = 17,948 ft.

Loc. 2) *Glacier lake on the northern slopes of the Laóche pass* 16,076 ft. Schl., Rob

= 1,835 ft. below the top of the pass; by aneroid.

Here is also the upper limit of grass vegetation.

Loc. 3) *Snow limit on the northern slopes of the Laóche pass* 16,400 ft. Schl., Rob.

„ 4) *Snow limit on the southern slopes of the Laóche pass* 17,900 „ Schl., Rob.

The snow-limits have been determined by aneroid.

AREA X.

PRINCIPAL SNOW-PEAKS OF THE WESTERN PARTS OF THE KARAKORÚM CHAIN.

No. 10. Changehénmo Pass, ab. 34° 9′; 79° 25′, in Pangkóng-Turkistán, N.E. of the salt lake Tsomognalarí . . . . . ab. 18,800 ft. Schl., Rob.

This pass, situated in the Karakorúm range (S.E. of the Karakorúm pass) was crossed by Adolphe, June 18, 1857, not as we formerly thought (see Vol. I., p. 33) July 9, 1857, on his last and fatal journey to Turkistán. From the description given of this pass by his attendants (see Vol. I. pp. 60 and 63) and from our general knowledge of the hypsometrical features in this region, we have estimated its height, which we hope will prove very near the truth.

No. 11. Yurungkásh Pass, ab. 36° 0′; 79° 58′, in Turkistán, leading from the Karakásh valley one day's journey above △ Siánder Mokám across the Kuenlúen to Yurungkásh.

Loc. *Top of the pass* . . . . . 16,620 ft. Schl., Herm.

Trigonometrically measured; the top was, however, not quite distinctly visible, and the value obtained is an approximation. The direction in which the pass lays, is distinctly visible in the Yurungkásh darváza panorama.

No. 12. Káfir Peak, 35° 52′; 78° 12′ E, in Turkistán; N. of Káfir Déra.

Loc. *Top of the peak* . . . . . 18,950 ft. Schl., Herm.

This peak is already 800 ft. above the snow limit, which attains on its flanks a height of 18,120 ft. Schl., Herm

---

No. 13. Élchi Daván Pass, 36° 13′; 78° 7′ E, in Turkistán, Kuenlúen range, separating the Karakásh from the Élchi valley.

Loc. 1) *Top of the pass* . . . . . 17,379 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 23, 1h P.M. *B* = Símla; *C* = Mássúri.
A. 181° 56 Fahr.; 25 5; 90. *B*. 23·127; 63·9; 97 = 17,370 ft. *C*. 23·544; 64 2; 93 = 17,388 ft.

Loc. 2) *Lower end of the Élchi pass glacier, on the northern slopes of the pass* . . . . . 14,810 ft. Schl., Herm.
= 2,569 ft. below the pass; by aneroid.

Here is also the upper limit of grass vegetation.

Loc. 3) *Above* △ *Oitásh, left side of the Élchi pass glacier, on its northern slopes* . . . . . 13,137 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 28, 7h A.M. *A.* 189°·10 Fahr.; 34·9; 89. Leh 19·768; 55·0; 60.

Loc. 4) △ *Oitásh, a pasture ground with fine grass, below the northern Élchi pass glacier, in the Búshia valley.* . . . 12,220 ft. Schl., Rob.

„ 5) *Upper limit of shrubs in the Búshia valley* . . . . . 11,140 „ Schl., Rob.

Loc. 4 and 5 are referred by aneroid to locality 3. The upper limit of shrubs is remarkably low throughout the northern slopes of the Kuenlúen.

Nos. 14-15. Súget Daván Peaks, in Turkistán.

No. 14. Súget Daván East Peak, 36° 8′·4; 77° 54′·1 E . . 20,648 ft. Schl., Herm.

No. 15. Súget Daván West Peak, 36° 8′·1; 77° 50′·4 E . . 19,902 ft. Schl., Herm.

These two peaks are in the immediate vicinity of the Súget Daván pass, from which they also have been measured. The west peak is about 200 ft. above the snow line. Schl., Herm.

Nos. 16-17. Kissilkorúm Peaks, in Turkistán.

No. 16. Kissilkorúm East Peak, 35° 55′; 77° 52′ E . . 18,555 ft. Schl., Herm.

No. 17. Kissilkorúm West Peak, 35° 55′; 77° 50′ E . . . 18,676 ft. Schl., Herm.

These two peaks were not measured from the Kissilkorúm itself, but 350 ft. lower down. Both peaks were free from snow in August, though just reaching the height of the snow-limit. The East peak, visible from the Aktágh panorama, is situated close to the left bank, the West peak close to the right bank of the Karakásh. Schl., Herm.

No. 18. Aksáe Chin, 35° 52′; 77° 51′ E, in Turkistán, the name of a lake basin, now drained, but occasionally filled with water.

Loc. *Level of the lake basin* . . . . . 16,620 ft. Schl., Herm.
= 1,142 ft. below the Kissilkorúm pass.

The general form and extent of this lake basin is seen in the Aktágh panorama. Schl., Herm.

No. 19. Kissilkorúm Pass, 35° 57′; 77° 50′ E, in Turkistán, in the ridge between the Yárkand and Karakásh.

Loc. 1) *Top of the pass* . . . . . 17,762 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 11, 5h 30m P.M. *B* = Leh; *C* = Símla; *D* = Mássúri.
A. 181° 30 Fahr.; 53 2; 0. *B.* 19 575; 76·1; 8 = 17,705 ft. *C.* 23·095; 64·6; 98 = 17,800 ft.
D. 23 461; 65·1; 94 = 17,781 ft.

The pass is visible from the Aktágh panorama. Schl., Herm.

Loc. 2) △ *Camp on its northern slopes* (Aug. 11—12). . . . . 17,390 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 12, 9h A.M. *B* = Símla; *C* = Mássúri.
A. 182° 00 Fahr.; 55 0; 0. *B.* 23 111; 63 5; 98 = 17,399 ft. *C.* 23·473; 64·8; 96 = 17,380 ft.

Not a trace of vegetation was to be found here.

No. 20. Karakorúm Pass, 35° 46′·9; 77° 30′·4 E, in Núbra-Turkistán, leading from Ladák to Turkistán.

Loc. 1) *Top of the pass* . . . . . 18,345 ft. Schl., Rob.
„ *ditto* . . . . . 18,200 „ Thoms.

5, Thermo-barom. 1856, Aug. 9, and Sept. 4. *B* = Leh; *C* = Símla; *D* = Mássúri.
5h P.M. *A.* 180°·32 Fahr.; 57 2; 0. *B.* 19·524; 81·1; 20 = 18,317 ft. *C.* 23·028; 63·0; 97 = 18,356 ft.
10h A.M. „ 180 12 „ ; 49 1, 7. „ 19 713; 59·2; 60 = 18,320 „ „ 23·150; 64 0; 95 = 18,355 „
D. 23 535; 66 0; 93 = 18,375 ft.

The depression formed by the pass is distinctly visible in the Aktágh panorama. Schl., Herm.

Loc. 2) △ *Dáulat Beg Úlde, on the southern foot of the Karakorúm pass* . . . . . 16,597 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 9, 8h A.M. *A.* 183° 12 Fahr.; 45 0; 31. Leh 19 654; 66·4; 39.

Loc. 3) *Northern border of the Dápsang plateau* . . . . . 17,706 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 4, 5h P.M. *B* = Leh, *C* = Símla, *D* = Mássúri.
A. 181 35 Fahr., 41 6; 29. *B.* 19 705, 59 4; 58 = 17,714 ft. *C.* 23·119; 62 4; 99 = 17,683 ft
D. 23·528; 64 0; 96 = 17,721 ft.

Loc. 4) *Mean height of the Dápsang plateau* . . . . . 17,500 ft. Schl., Rob.

The Dápsang plateau is still below the snow-limit. A few mountains in it rise 400 to 600 ft. higher; they are also quite free from snow.

No. 21. Súget Daván Pass, 36° 6′; 77° 30′, in Turkistán, in the high plateaux on the route from Ladák to Yárkand.

Loc. *Top of the pass* . . . . . 17,683 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 2, 10h A.M. *A.* 181 18 Fahr.; 35·1; 58. Leh 19 677; 54 5; 62.

No. 22. DÁPSANG PEAK, 35° 28′; 77° 10′, in Núbra, W.S.W. of the Karakorúm pass, in the Karakorúm range . . . . . 28,278 ft. G. T. S.

This peak, called by the G. T. S. "*K* 2", is exceeded in height only by the Gaurisánkar (29,002). Kanchinjínga West peak is 122 ft. lower than the Dápsang peak.

The Dápsang peak was first seen by Dr. Thomson, who says in his "Western Himálaya", p. 429: "A grand snowy range was seen in perfection . . . . I felt at the time fully convinced, that a very high peak was at least 24,000 ft. above the level of the sea."

We had occasion twice to pass this peak during our journeys to Turkistán. From the spot where Hermann drew a panorama (see the Dápsang panoramic profile, in which it forms the prominent object), we also tried to measure it, on our way home, but we could not obtain sufficient accuracy, being repeatedly interrupted by passing fogs.

Our inquiries for finding a native name for this peak proving to be useless, we call it "Dápsang peak", it forming so prominent an object of this elevated plateau, the highest probably of our globe.

The Dápsang peak was not visible from any of the routes travelled in Bálti and on the borders of Western Ladák by our brother Adolphe.

Nos. 23-4. MASHERIBRÚM PEAKS, in Bálti.

N.N.E. of Húshe, in the Karakorúm chain.

No. 23. MASHERIBRÚM WEST PEAK, 35° 15′·3; 76° 36′·4 ⊢ . . 25,626 ft. Schl., Ad.

This is the highest peak hitherto measured in Bálti; it is N.W. of the Dápsang peak (the peak *K* 2 of the G. T. S.)

The Masheribrúm peak is seen from Húshe under an angle of 11′ 50′. Schl., Ad.

No. 24. MASHERIBRÚM EAST PEAK, 35° 42′·9; 76° 36′·9 ⊢ . . 21,513 ft. Schl., Ad.

The Masheribrúm peaks are seen as distant but well marked objects in the Kánji panorama. Schl., Ad.

No. 25. MUSTÁGH PASS, 36° 1′, 76° 2′, in Bálti-Turkistán, one of the highest passes of the Karakorúm, leading from Bálti to Turkistán.

Loc. 1) *Top of the pass.* . . . . . 19,019 ft. Schl., Ad.

6, Adie. 1856, Aug. 22, *B* = Leh; *C* = Símla, *D* = Massúri.

11^h 45^m A.M. *A.* 14·989; 38 3; 38. *B.* 19 720; 61·0; 59 = 19,031 ft. *C.* 23·193, 64 6; 97 = 19,055 ft.
D. 23·591; 64·2; 93 = 19,050 ft.

12^h 40^m P.M. *A.* 15·004; 36·5; 52. *B.* 19·716; 62 2; 55 = 18,995 ft. *C.* 23 189, 61 6; 95 = 19,004 ft.
D. 23·575; 63·5; 94 = 18,976 ft.

Loc. 2) *Camp at the "mer de glace" of the Mustágh pass.* . 17,990 ft. Schl., Ad.

6, Adie. 1856, Aug. 22, 9^h A.M. *B* = Leh; *C* = Simla; *D* = Massuri.

A 15 559; 33·4; 66 *B* 19 759; 59 4; 66 = 18,008 ft. *C.* 23 201; 63 1; 94 = 17,967 ft
D. 23 607; 61·6; 93 = 17,994 ft.

No. 26. DIÁMER PEAK, or NÁNGA PĂRBÁT, 35° 14′·4; 74° 34′·5 ✝, in Hasóra.

Loc. *Top of the peak* . . . . . 26,629 ft. G. T. S.

This peak, the highest in Hasóra, is situated close to the remarkable bend made by the Indus. It was measured from eleven principal stations by Captain G. T. Montgomerie, who gave of his operations minute details in the Journal of the Asiatic Society of Bengál, 1857, p. 266.

Adolphe, during his travels in Bálti, had repeatedly occasion to see and measure this splendid mountain, which, besides from many other places, is distinctly visible from the Nunevára mountain. (See the panoramic profiles, plate No. V.)

The following points, in the environs of the Diámer, were measured by Adolphe:

No. 27. △ CHU BIÁR, on the left side of the Táshing glacier.

Loc. *Level of the glacier* . . . . . 10,789 ft. Schl., Ad.

6, Adie. 1856, Sept. 17, 7^h A.M. *A.* 20·221; 45·7; 70. Símla 23 162; 57·2; 93.

There are, just at this locality, a considerable quantity of fir-trees.

No. 28. △ RÚPAL, on the right side of the Táshing glacier, above the Rúpal lake.

Loc. *Encampment* . . . . . 10,010 ft. Schl., Ad.

6, Adie. 1856, Sept. 17, 12^h 40^m P.M. *A.* 20 891; 63·7; 60. Símla 23·189; 64·9; 92.

No. 29. TÁMI CHÚET GLACIER. *Lower end* . . . . . 10,460 ft. Schl., Ad.

Referred by aneroid to △ Chu Biár.

No. 30. △ TAP. *Foot of the Tap glacier* . . . . . 11,508 ft. Schl., Ad.

6, Adie. 1856, Sept. 18, 7^h A.M. *A.* 19 760; 43 2; 70. Símla 23·241; 58 1; 94.

Fir-trees are still growing here, already intermixed with shrubs.

No. 31. MASÉNNO GLACIER. *Left moraine of the glacier* 13,176 ft. Schl., Ad.

6, Adie. 1856, Sept. 19, 6^h A.M. *A.* 18 532; 29 5; 60. Símla 23 241; 58 8; 97.

The upper limit of shrubs is at a height of 13,900 ft. Schl., Ad.

No. 32. MASÉNNO GLACIER. *Lower end* . . . . . 12,032 ft. Schl., Ad.

6, Adie. 1856, Sept. 19, 9^h A.M. *B* = Símla; *C* = Mássúri.

A. 19 115; 55·9; 60. *B.* 23·224; 61·9; 97 = 12,026. *C.* 23 631; 59·7; 94 = 12,038.

The *extreme* limit of fir-trees is here.

No. 33. TÁSHING GLACIER, an old lateral moraine, on the left side of the glacier, on the road from Táshing to △Rúpal . . . . . 10,028 ft. Schl., Ad.

6, Adie. 1856, Sept. 20, 8^h 45^m A.M. *A.* 20·910; 55·6; 60. Símla 23·257; 60·4; 97.

Nos. 34-7. KHÁGAN PEAKS, in Hasóra,
in the range between the Kishengánga and the Indus.

No. 34. KHÁGAN PEAK No. 19♁, 35° 7′·9; 74° 25′·3 . . . 20,740 ft. G. T. S.

No. 35. KHÁGAN PEAK No. 16♁, 34° 56′·1; 74° 18′·3. . . 17,015 ft. G. T. S.

No. 36. KHÁGAN PEAK No. 26♁, 35° 0′·8; 74° 10′·0 . . . 16,228 ft. G. T. S.

No. 37. KHÁGAN PEAK No. 21♁, 34° 48′·7; 74° 2′·5 . . . 14,875 ft. G. T. S.

No. 38. PIR KE DHÉRI PEAK (No. 23♁), 34° 43′·5; 73° 42′·6, in Hasóra, Khágan range, situated between the Kishengánga and Indus . . . . . 16,487 ft. G. T. S.

This peak is in the Tibetan part of the Nunevára panorama one of the principal prominences in a range parallel to the Kishengánga, covered with numerous secondary glaciers. Schl., Ad.

No. 39. NÍLA PEAK (No. 25♁), 34° 35′·9; 73° 38′·3, in Hasóra, Khágan range, between the Kishengánga and Indus . . . . . 15,535 ft. G. T. S.

This peak belongs to the range which forms the watershed between the Indus and Kishengánga, and it is the westernmost object visible in the Tibetan part of the Nunevára panorama.

Schl., Ad.

AREA XI.

TRANSVERSAL SECTIONS ACROSS TÍBET, PARTIALLY CONTINUED ACROSS THE KUENLÚEN.

SECTION A. NÍTI—GÁRTOK.

No. 40. Mansaráur, or Tso Mápan Salt Lake, 30° 28′; 81° 26′ (referred to △ Tókar, on its southern border), in Gnári Khórsum . . . . . ab. 15,250 ft. Strach.

No. 41. Rákus Tal, or Tso Lánag Salt Lake, 30° 29′; 81° 10′ (referred to △ Lágan Túnkan, on its southern border), in Gnári Khórsum . . . . . ab. 15,250 ft. Strach.

No. 42. Lípu Leg Pass, 30° 11′; 80° 54′, in Gnári Khórsum, between the Káli and Sátlej . . . . . 17,670 ft. Webb.

No. 43. △ Ámlung, 30° 38′; 80° 47′, in Gnári Khórsum, on an affluent of the Sátlej.
Loc. *Bottom of a narrow valley* . . . . . ab. 15,300 ft. Strach.

No. 44. Níma Kar Salt Lake, 30° 41′; 80° 40′, in Gnári Khórsum, W. of the Mansaráur salt lake . . . . . ab. 15,100 ft. Strach.

No. 45. △ Bhavíti, 30° 29′; 80° 29′, in Gnári Khórsum, N. of the Lángpia pass.
Loc. *Encamping ground* . . . . . ab. 15,750 ft. Strach.

No. 46. Phiamúngba, 30° 16′; 80° 32′, in Gnári Khórsum.
Loc. 1) *Foot of the Lángpia pass* . . . . . ab. 15,750 ft. Strach.
„ 2) *Lángpia pass* . . . . . ab. 17,750 „ Strach.
„ 3) △ *Vílsha, northern foot of the Lángpia pass* . . ab. 16,000 „ Strach

No. 47. GÁRTOK, 31° 40′·0; 80° 18′·4 E, in Gnári Khórsum, an important commercial *entrepôt*, near the right bank of the Indus.

Loc. 1) *Mean height of the place* . . . . . 15,090 ft. Schl., Rob.
= 223 ft. above the level of the Indus; trigonometrically measured.

Gártok, besides its commercial importance, is one of the highest temporarily inhabited places of Western Tíbet.

Loc. 2) *Level of the Indus, 3 miles S. of Gártok* . . . . . 14,867 ft. Schl., Rob.
8, Thermo-barom. 1855, July 28, 8h A.M. A. 185°·89 Fahr.; 13 3; 76. Símla 23 056; 64 0; 97.

Loc. 3) *Peak, about 10 miles S. of Gártok* . . . . . 17,150 ft. Schl., Rob
Trigonometrically measured from the level of the Indus.

No. 48. △ LAPTÉL, 30° 46′·3; 79° 52′·0 E, in Gnári Khórsum, on the southern foot of the Balch Dhúra pass.

Loc. 1) *Encamping ground* . . . . . 13,994 ft. Schl., Ad.
6, Adic. 1855, July 13, 10h A.M. A. 18 071; 66 7; 52. Símla 23 056; 67·6; 92.

„ 2) *Level of the Laptél* . . . . . 13,570 ft. Schl., Ad.
= 424 ft. below the encamping ground at △ Laptél; by aneroid.

„ 3) *Pass between △ Kiángar and △ Laptél* . . . . . 15,101 ft. Schl., Ad.
6, Adic. 1855, July 12, 1h P.M. A. 17 240; 51 3; 50. Símla 23 028; 70·3; 89. — 81 ft

„ 4) *High ground, where the magnetic instruments were put up* . . . . . 14,304 ft. Schl., Rob.
— 310 ft. above the encamping ground; by aneroid.

„ 5) △ *Shélchell, W. of △ Laptél* . . . . . ab. 16,200 ft. Schl., Ad.

No. 49. △ NIÚGCHANG, 31° 3′; 79° 46′, in Gnári Khórsum, on the left bank of the Niúg-chang, an affluent of the Sátlej.

Loc. *Level of the river* . . . . . 14,299 ft. Schl., Ad

8, Thermo-barom. 1855, July 19, 2h 30m P.M. A. 186°·95 Fahr.; 51 3; 58. Símla 23 021; 70 5; 91 14,302 ft.
„ „ „ 20, 8h 0m A.M. „ 186°·99 „ , 53·8; 53. „ 23 056; 64 1; 96 14,295 ,

---

No. 50. △ GYÚNGUL, or △ DÚLLA SÚMDO, 31° 14′·0; 79° 44′·7 E, in Gnári Khórsum, on the confluence of the Sátlej with the Gyúngul.

Loc. 1) *Level of the confluence* . . . . . 13,294 ft. Schl., Rob.
8, Thermo-barom. 1855, July 21, 9h A.M. A. 188° 75 Fahr., 57 0, 63. Símla 23 091; 64 9; 92.

Loc. 2) *Position of the astronomical instruments* . . . . . 13,420 ft. Schl., Rob
= 126 ft. above the level of the confluence; by aneroid.

Loc. 3) *Level of the Sátlej, at the bridge below Gyúngul (between this place and Míla)* . . . . . 13,126 ft. Schl., Rob.

8, Thermo-barom. 1855, July 25, 10h A.M.

A. 188° 95 Fahr.; 50·5; 77. Mássúri 23·473; 68·2; 80 = 13,145 ft. Símla 23·071; 64·6; 98 = 13,106 ft.

Loc. 4) *Plateau-like surface of the Sátlej valley above △ Dúlla Súmdo* . . . . . 14,780 ft. Schl., Rob.

= 1,486 ft. above the level of the confluence.

No. 51. △ TÁZANG, 30° 59′; 79° 44′, in Gnári Khórsum, pasture ground at the bottom of a ravine.

Loc. 1) *Level of the Tázang* . . . . . 14,966 ft. Schl., Rob.

8, Thermo-barom. 1855, July 17, 6h P.M. *A.* 185°·56 Fahr.; 51·6; 36. Mássúri 23·339; 66·0; 95. — 83 = 14,493 ft.
„ „ „ 18, 11h A.M. „ 185° 70 „ ; 49·5; 76. Símla 23 013; 64·9; 97. — 00 = 14,989 „

Loc. 2) *Plateau-like surface of the Sátlej valley above △ Tázang* 15,325 ft. Schl., Ad.

= 259 ft. above Tázang; by aneroid.

No. 52. △ TÍSUM, 31° 8′; 79° 37′, in Gnári Khórsum, 3 miles S. of Dába.

Loc. 1) *Level of the Tísum* . . . . . 14,529 ft. Schl., Rob.

8, Thermo-barom. 1855, Aug. 2, 3h P.M. *A.* 186° 65 Fahr.; 68·0; 21. Símla 23·056; 64·4; 96. — 75 ft.

Loc. 2) *Plateau-like surface of the Sátlej valley at △ Tísum* 15,295 ft. Schl., Rob.

8, Thermo-barom. 1855, Aug. 1, 4h P.M. *A.* 185° 60 Fahr.; 65 5; 26. Símla 23·044; 64·8; 96.

No. 53. MÁNGNANG, 31° 18′; 79° 33′, in Gnári Khórsum, on the left bank of the Mángnang, between Dába and Chábrang.

Loc. 1) *Entrance to the large Buddhist temple* . . . . . 13,457 ft Schl., Rob.

8, Thermo-barom. 1855. *B* = Mássúri; *C* = Símla.

Aug. 7, 9h A.M. *A.* 188°·56 Fahr.; 62·6; 27. *B.* 23 512; 63·1; 95 = 13,474 ft. *C.* 23·099; 62·6; 97 = 13,437 ft.
„ 8, 9h „ „ 188° 56 „ ; 64 2; 43. „ 23 193; 63·5; 95 = 13,474 „ „ 23·087; 62 2; 97 = 13,440 „
„ 9, 9h „ „ 188° 49 „ ; 63·0; 32. „ 23·079; 63·1; 96 = 13,461 „

A fine group of poplar trees, carefully kept up by the lamas, is to be found near the monastery. The largest was 7½ ft. in circumference, and attained a height of 60 ft. Our Atlas contains the view of the interior of the temple, drawn by Adolphe. (See Atlas of Panoramas and Views, plate 12.)

Loc. 2) △ *Dóra, above Mángnang* . . . . . 13,520 ft. Schl., Rob.

= 927 ft. above the temple at Mángnang; by aneroid.

„ 3) *Plateau-like surface of the Sátlej valley above △ Tónse* 15,126 ft. Schl., Ad.

— 1,606 ft. above △ Dóra; by aneroid.

No. 54. △ TÓLING DÓRA, 31° 24′; 79° 33′, in Gnári Khórsum, S.S.E. of Tóling.

Loc. *Encamping ground* . . . . . 14,400 ft. Schl., Ad.

= 2,031 ft. above Tóling; by aneroid.

A large panorama was drawn here by Adolphe. See Panoramic Profiles, plate No. IV.

No. 55. △ DÍRA, 31° 18′·9; 79° 32′·7 E, in Gnári Khórsum, in the valley of Mángnang, above the village of that name . . . . . 13,800 ft. Schl., Rob.

= 343 ft. above Mángnang; by aneroid.

No. 56. TÓLING, 31° 27′; 79° 32′, in Gnári Khórsum, left bank of the Sátlej, E. of Chábrang.

Loc. 1) *Level of the Sátlej* . . . . . 12,369 ft. Schl., Ad.

6, Adie. 1855, Sept. 11, 4h 30m P.M. *A.* 19 186; 65·8; 19. Símla 23 189; 64 8; 90. — 53 ft.

Loc. 2) *Level of a river at Be village, N.E. of Tóling* . . . 13,417 ft. Schl., Ad

6, Adie. 1855, Sept. 11, 9h A.M.

A. 18·465; 52 3; 24. Símla 23·201; 61·7; 93 = 13,405 ft. Mássúri 23·591; 65·3; 91 = 13,429 ft.

Here is also the upper limit of poplars.

No. 57. CHÁBRANG, 31° 26′; 79° 22′, in Gnári Khórsum, 1 mile S. of the Sátlej, and W. of Tóling.

Loc. *Plain at the Jhúngpun's house* . . . . . 15,588 ft. Schl., Ad.

6, Adie. 1855, Sept. 14, 3h P.M.

A. 17·060; 53·2; 18. Símla 23·224; 66 7; 90. — 86 = 15,604 ft. Mássúri 23 587; 65·5; 92. — 90 = 15,556 ft.

The Jhúngpun's house is one of the highest stone houses in Western Tíbet; it is, however, inhabited in summer only.

No. 58. ÍBI GÁMIN GLACIER, 30° 56′·2; 79° 19′·5 E, in Gnári Khórsum, the main glacier on the northern flanks of the Íbi Gámin peak.

Loc. 1) *Lower end of the glacier* . . . . . 16,642 ft. Schl., Rob.

6, Adie. 1855, Aug. 13, 9h A.M.

A. 16·374; 46·4; 24. Mássúri 23 535; 64·0; 96 = 16,643 ft. Símla 23·139; 64 0; 98 = 16,638 ft.

This glacier is also called by the Tibetans "Gántug Súmgya Dúnchu."

Loc. 2) △ *Camp on the left side of the main Íbi Gámin glacier* . . . . . 18,308 ft. Schl., Rob.

6, Adie. 1855, Aug. 20, 6h P.M. *A.* 15 323; 30·6; 100. Mássúri 23·544; 64·0; 92.

Loc. 3) △ *Camp on the lateral moraine of the main glacier* . 17,813 ft. Schl., Ad.

6, Adie. 1855, Aug. 16, 5h 30m P.M. *A.* 15·729; 50·2; 4. Mássúri 23 543; 64 9; 88.

No. 59. Birm Kánta, or Chérong Pass, 31° 14′; 79° 17′, in Gnári Khórsum, leading from the Póti valley to △ Lomórti.

Loc. 1) *Top of the pass* . . . . . 17,615 ft. Schl., Ad.

6, Adie. 1855.

Sept. 6, 5h P.M. *A.* 15·760; 41·5; 30. Símla 23·150; 62·8; 98 = 17,641 ft.
„ 14, 12h Noon. „ 15 914; 48·6; 20. „ 23·237; 65 8; 91 = 17,590 „ Mássúri 23·630; 68 2; 82 = 17,615 ft.

Loc. 2) △ *Lomórti, near the confluence of two rivers, northern foot of the Birm Kánta pass.* . . . . . 16,648 ft. Schl., Ad.

6, Adie. 1855, Sept. 14, 10h 30m A.M.

A. 16 501; 56 8; 20. Símla 23·220; 65 1; 93 = 16,637 ft. Mássúri 23·622; 65·7; 89 = 16,658 ft.

Here is also the upper limit of shrubs, though some of them rise up even to 17,000 ft. △ Lomórti is not used as a pasture ground.

No. 60. Púling, 31° 15′·5; 79° 15′·7 E, in Gnári Khórsum, a village on an affluent of the Sátlej.

Loc. 1) *Level of the affluent* . . . . . 13,953 ft. Schl., Ad.

6, Adie. 1855, Sept. 17, 10h A.M.

A. 18·171; 57 2; 70. Símla 23·229; 63·9; 95 = 13,947 ft. Mássúri 23·622; 64·9; 87 = 13,959 ft.

Púling is one of the highest permanently inhabited villages in Western Tíbet.

Loc. 2) *Position of the astronomical instruments* . . . . . 14,207 ft. Schl., Ad.

= 254 ft. above the level of the affluent; by aneroid.

„ 3) △ *Shángra, E. of Púling* . . . . . 14,826 ft. Schl., Ad.

6, Adie. 1855, Sept 15, 10h A.M.

A. 17·594; 55·0; 20. Símla 23 237; 64 9; 93 = 14,843 ft. Massúri 23 599; 65 1; 87 = 14,809 ft.

Loc. 4) *Plateau-like surface of the Sátlej valley above Púling* 15,890 ft. Schl., Ad.

6, Adie. 1855, Sept. 17, 12h 30m P.M. *B* = Púling; *C* = Símla; *D* = Mássúri.

A. 16 957; 57 2; 10. *B.* 18·168; 62·0; 30 = 15,881 ft. *C.* 23 217; 65·8; 93 = 15,891 ft.
D. 23·603; 67 1; 82 = 15,897 ft.

Loc. 5) *Pass between Púling and the Nélong pass* . . . . . 16,726 ft. Schl., Ad.

6, Adie. 1855, Sept. 17, 4h P.M.

A. 16 378; 46 4; 36. Símla 23·197; 67·8; 86 = 16,741 ft. Mássúri 23 585; 65 3; 89 = 16,711 ft.

Loc. 6) *Upper limit of shrubs* . . . . . 16,900 ft. Schl., Ad.

Referred to △ Búlla La.

„ 7) *Camp at* △ *Búlla La* . . . . . 15,976 „ Schl., Ad.

6, Adie. 1855, Sept. 18, 9h A.M. *A.* 16·776; 40·6; 50. Símla 23·220; 60·6; 96.

No. 61. △ ZINCHÍN, 31° 38′; 78° 54′, in Gnári Khórsum, S. of the Sátlej.

Loc. 1) *Encamping ground* . . . . . 16,222 ft. I. A. 65.
„ *ditto* . . . . . 16,136 „ Ger.
„ 2) *Békhar, E. of* △ *Zinchín* . . . . . 12,676 „ Ger.

No. 62. △ ZAMSÍRI, 31° 36′; 78° 52′, in Gnári Khórsum, E. of the Kióbrang pass, S. of the Sátlej . . . . . 15,639 ft. I. A. 65.
„ *ditto* . . . . . 15,600 „ Ger.

No. 63. ZONGCHÍN, 31° 36′; 78° 45′, in Kánáur, W. of the Kióbrang pass.

Loc. 1) *Encamping ground* . . . . . 14,709 ft. I. A. 65.
„ *ditto* . . . . . 14,693 „ Ger.
„ 2) △ *Ríshi Tálam* . . . . . 14,977 „ I. A. 65.

No. 64. SHÍPKI, 31° 49′; 78° 44′, in Gnári Khórsum, near the left bank of the Sátlej.

Loc. 1) *Mean height of the village* . . . . . 10,454 ft. Herb. and Hodg.
„ *ditto* . . . . . 10,597 „ Ger.
„ *ditto* . . . . . 11,192 „ J. A. Herbert.
„ 2) *Level of the Sátlej* . . . . . 9,267 „ Herb. and Hodg.
„ *ditto* . . . . . 10,005 „ J. A. Herbert.

No. 65. PÍMING PASS, 31° 50′; 78° 45′, in Gnári Khórsum, N.N.E. of Shípki.

Loc. *Top of the pass* . . . . . 13,518 ft. Ger.

No. 66. ROTHÍNGI PASS, 31° 36′; 78° 38′, in Kánáur, S. of the Tágla Gar, an affluent of the Sátlej.

Loc. *Top of the pass* . . . . . 14,638 ft. Ger.

SECTION *B.* VÁNGTU—PANGKÓNG.

No. 67. MÁYANG LA PASS, 31° 48′; 79° 6′, in Spíti, between Shípki and Shálkar.

Loc. *Top of the pass* . . . . . 17,700 ft. Herb. and Hodg.

No. 68. HÚKEO PASS, 31° 36′; 78° 53′, in Gnári Khórsum, S.W. of Békhar.

Loc. *Top of the pass* . . . . . 15,786 ft. Ger.

Nos. 69-70. Porgyál Peaks, in Spíti,
N. of Shípki, a village near the left bank of the Sátlej.

No. 69. Porgyál North Peak, 31° 54′·1; 78° 43′·7 . . 22,227 ft. G. T. S.

No. 70. Porgyál South Peak, 31° 53′·1; 78° 43′·1 . . 22,183 ft. G. T. S.

The Porgyál peaks are not visible in the Kidarkánta panorama; they are, however, indicated in the respective hypsometrical diagram. Schl., Ad.

The highest point reached by the brothers Gerard on the flanks of the Porgyál peak was 19,411 ft. Schl., Rob.

No. 71. Kúngma Pass, 31° 48′; 78° 41′, in Gnári Khórsum, between Námja and Shípki, S.W. of Shípki . . . . . 16,007 ft. Ger.

No. 72. Tashigáng, 31° 50′; 78° 39′, in Spíti, near the confluence of the Pin and Sátlej.
Loc. *Buddhist temple* . . . . . 12,807 ft. Herb. and Hodg.

No. 73. Lam Pass, 31° 51′; 78° 39′, in Spíti, N.E. of Mūd.
Loc. *Top of the pass* . . . . . 13,186 ft. G. T. S.

No. 74. Náko, 31° 53′; 78° 36′, in Spíti, N. of the Sátlej, and S. of Shálkar.
Loc. 1) *Mean height of the village* . . . . . 11,975 ft. Herb. and Hodg.
„ *ditto* . . . . . 12,014 „ Ger.
„ *ditto* . . . . . 12,438 „ J. A. Herbert.
„ 2) *Náko pass, E. of Náko* . . . . . 18,683 „ Ger.

No. 75. Krúpu Pass, 31° 57′; 78° 35′, in Spíti, N. of Náko.
Loc. *Top of the pass* . . . . . 12,513 ft. Ger.

No. 76. Shálkar, 32° 0′; 78° 32′, in Spíti, on the right bank of the Pin, an affluent of the Sátlej.
Loc. 1) *Fort* . . . . . 10,272 ft. Herb. and Hodg.
„ 2) *Sánga (bridge of spars) below Shálkar* . . . . . 10,014 „ Ger.
„ 3) *Hot spring near Shálkar* . . . . . 10,600 „ Schl., Härk.
= 586 ft. above the bridge of spars; by aneroid.
„ 4) *Lábcha pass, N. of Shálkar* . . . . . 13,628 ft. Herb. and Hodg.

No. 77. GYÁ PEAK, 32° 22′; 78° 28′, in Spíti, E. of the Párang pass and N.E. of Dánkhar, or Dránkhar . . . . . 24,980 ft. Cunning.

No. 78. LÁRI, 32° 5′; 78° 23′, in Spíti, on the left bank of the Pin, E. of Dánkhar, or Dránkhar.

Loc. 1) *Mean height of the village* . . . . . 11,071 ft. Herb. and Hodg.
„ *ditto* . . . . . 11,515 „ J. A. Herbert.
„ *ditto* . . . . . 11,894 „ Cunning.
„ 2) *Level of the Pin* . . . . . 10,582 „ Herb. and Hodg.

No. 79. MÁNIRANG PEAK, 31° 57′·3; 78° 21′·0, in Spíti, S.S.E. of Dánkhar, or Dránkhar.

Loc. 1) *Top of the peak* . . . . . 21,646 ft. G. T. S.
„ 2) *Mánirang pass* . . . . . 18,612 „ Ger.

No. 80. POG, 32° 2′; 78° 21′, in Spíti, S.E. of Dánkhar, or Dránkhar.

Loc. *Mean height of the village* . . . . . 12,095 ft. Cunning.

No. 81. KÁMELANG PEAK, 32° 7′; 78° 18′, in Spíti, E. of Dánkhar, or Dránkhar.

Loc. *Top of the peak* . . . . . 19,375 ft. G. T. S.

No. 82. HÁRSUNG PEAK, 32° 1′; 78° 13′, in Spíti, S. of Dánkhar, or Dránkhar.

Loc. *Top of the peak* . . . . . 17,820 ft. G. T. S.

No. 83. DÁNKHAR, or DRÁNKHAR, 32° 6′; 78° 13′, in Spíti, a village and fort near the right bank of the Tódi chu.

Loc. *Mean height of the village* . . . . . 12,774 ft. G. T. S.
„ *ditto* . . . . . 13,598 „ Cunning.
„ *ditto* . . . . . 13,014 „ Ger.

No. 84. CHÁBRANG, 32° 9′; 78° 12′, in Spíti, on the right bank of the Língti, above its confluence with the Tódi chu.

Loc. 1) *Mean height of the village* . . . . . 11,652 ft. Schl., Herm.

1, Greiner. 1856, June 15, 6h A.M. *A.* 19·532; 47·8; 61. Símla 23·014; 63·5; 94. + 45 ft.

Loc. 2) *Level of the Língti at Chábrang* . . . . . 11,435 ft. Schl., Herm.

1, Greiner. 1856, June 15, 7h A.M.

A. 19·697; 51 20. Símla 23·024; 63 5; 94. + 43 = 11,446 ft. Chábrang 19·538; 49·0; 42 = 11,424 ft.

Loc. 3) *Confluence of the Língti and Tódi chu* . . . . . 11,316 ft. Schl., Herm.

1, Greiner. 1856, June 15, 9h 30m A.M. *A.* 19·804; 66·9; 34. Símla 23·017; 63·9; 92.

No. 85. TANGLÁNGABA MOUNTAIN, 32° 12′; 78° 10′, in Spíti, N.N.W. of Dánkhar, or Dránkhar, and 3 miles E. of the Tódi chu . . . . . 16,266 ft. G. T. S.

Nos. 86-7. TÍLING PEAKS, in Spíti, N.E. of Mud.

No. 86. TÍLING EAST PEAK, 31° 58′·6; 78° 9′·8 ♁ . . . 19,660 ft. G. T. S.

No. 87. TÍLING WEST PEAK (☿ ♁), 31° 59′·2; 78° 6′·3 . 19,454 ft. G. T. S.

No. 88. LÁRA, 32° 9′; 78° 9′, in Spíti, between Dánkhar, or Dránkhar, and Kí.

Loc. *Mean height of the village* . . . . . 13,118 ft. Cunning.

No. 89. KI PEAK (♉ ♁), 32° 18′·7; 78° 9′·0 ♁, in Spíti, E. of Kí, a large monastery on the left bank of the Spíti . . . . . 20,690 ft. G. T. S.

No. 90. NUNULÚKA PEAK, 32° 8′; 78° 7′, in Spíti, in the range on the left bank of the Tódi chu . . . . . 17,720 ft. G. T. S.

No. 91. RÁNGRIG, 32° 15′; 78° 6′, in Spíti, on the right bank of the Tódi chu, N.N.W. of Dánkhar, or Dránkhar.

Loc. *Mean height of the village* . . . . . 13,048 ft. Schl., Härk.

„ *ditto* . . . . . 12,954 „ Cunning.

11, Pistor. 1857, Aug. 10, 1h P.M. *A.* 18·607; 68·9; 13. Símla 23·075; 64·6; 97. — 61 ft.

No. 92. △ JÚGTA, 32° 22′; 78° 6′, in Spíti, N. of Rángrig.

Loc. *Encamping ground* . . . . . 15,058 ft. Cunning.

No. 93. KÍBAR, 32° 19′; 78° 5′, in Spíti, a village a few miles N. of Kí.

Loc. *Open place in the centre of the village* . . . . . 13,607 ft. Schl., Herm.

1, Greiner. 1856, June 17, 7h A.M. *B* = Mässúri; *C* = Símla.

A. 18 185; 60 1; 53. *B.* 23·359; 60 1; 93 = 13,609 ft. *C.* 22·973; 59·5; 91 = 13,604 ft.

Cunningham gives for Kíbar, without mentioning the locality, 14,513 ft. Thomson in his Western Himálaya, p. 131, 13,800 ft. Kíbar is decidedly one of the highest permanently inhabited places of Tíbet.

No. 94. KÁZI, 32° 12′; 78° 5′, in Spíti, left bank of the Tódi chu, but high above the river.

Loc. *Mean height of the village* . . . . . 12,025 ft. Schl., Herm.

1, Greiner. 1856, June 16, 7h A.M. *A.* 19·304; 56·1; 48. Símla 23·013; 63·9; 88. + 19 ft.

No. 95. SÁNGNAM, 32° 2′; 78° 4′, in Spíti, near the confluence of the Pin and Paráhio.

Loc. *Mean height of the village* . . . . . 12,130 ft. Schl., Herm.

1, Greiner. 1856, June 14, 12h Noon. *A.* 19 244; 64·8; 40. Símla 23·005; 68·9; 83.

No. 96. TÍLING, 31° 59′; 78° 3′, in Spíti, right bank of the Pin, N. of the Tári pass.

Loc. *Highest house of the village* . . . . . 12,275 ft. Schl., Herm.

1, Greiner. 1856, June 14, 9h 30m A.M.

A. 19·130; 61·2; 30. Símla 23·009; 66·0; 89 = 12,265 ft. Kárdong 20·576; 62·6; 59 = 12,285 ft.

No. 97. MŪD, 31° 55′·6; 78° 1′·3 E, in Spíti, left bank of the Pin, N. of the Tári, or Bhábeh pass.

Loc. *Mean height of the village* . . . . . 12,421 ft. Schl., Herm.

1, Greiner. 1856, June 13, 10h 30m A.M.

A. 19·016; 61·5; 40. Símla 23·005; 63·3; 95 = 12,410 ft. Kárdong 20·558; 61·0; 40 = 12,431 ft.

No. 98. PÁRANG PASS, 32° 26′; 78° 5′, in Spíti, S.E. of the Bára Láchas pass.

Loc. 1) *Top of the pass* . . . . . 18,500 ft. Cunning.

„ *ditto* . . . . . 18,794 „ Mac.

„ 2) *Southern foot of the pass* . . . . . 16,150 ft. Schl., Herm.

1, Greiner. 1856, June 18, 7h A.M. *A.* 16·343; 20·5; 57. Símla 22 965; 58·5; 70.

„ 3) △ *Trátang, on the northern foot of the pass* . . . . . 16,916 ft. Cunning.

No. 99. KIÓTO PEAK (A^{II} ♁), 32° 31′·6; 77° 53′·9, in Spíti, N. of Kióto, a village in the upper course of the Spíti . . . . . 19,880 ft. G. T. S.

Nos. 100-1. KÁGA PEAKS, in Spíti,

in the range which separates the Ratáng from the Paráhio valley.

No. 100. KÁGA EAST PEAK $S^{L}\dagger$, 32° 6′·8; 77° 53′·9 . . . . 19,735 ft. G. T. S.

No. 101. KÁGA WEST PEAK $\phi\dagger$, 32° 5′·5; 77° 43′·1 . . . 21,772 ft. G. T. S.

The Kága West peak is visible in the Jáko panorama. Schl., Herm.

No. 102. △ PANG, 33° 6′; 77° 41′, in Spíti, E. of the Lácha Lung pass, and S.W. of △ Rúkchin.

Loc. *Encamping ground* . . . . . 14,682 ft. Schl., Rob.

8, Pistor. 1856, June 24, 7^{h} A.M. *A.* 17·445; 39·0; 31. Símla 23·028; 64·4; 70.

No. 103. NÓRBU, 32° 41′; 78° 18′, in Spíti, S. of △ Kórzog, a summer village on the Tsomoríri salt lake . . . . . 15,946 ft. Cunning.

No. 104. △ PHÁLÁṄG, 32° 36′; 78° 16′, in Spíti, N.E. of the Párang pass.

Loc. *Encamping ground*. . . . . 16,383 ft. Cunning.

No. 105. YANÁM PEAK ($B\dagger$), 32° 49′·2; 77° 23′·5, in Spíti, N. of the Bára Lácha pass, leading from Lahól to Spíti . . . . . 20,069 ft. G. T. S.

SECTION C. KÁRDONG—KARAKORÚM CHAIN.

No. 106. HÁNLE PEAK, 32° 53′; 79° 1′, in Ladák, N.E. of Hánle.

Loc. *Top of the peak* . . . . . 20,650 ft. Cunning.

Nos. 107-8. JÁNGLUNG PEAKS, in Ladák, N.N.E. of Hánle.

No. 107. JÁNGLUNG NORTH PEAK, 32° 58′; 79° 0′ . . 20,357 ft. Cunning.

No. 108. JÁNGLUNG SOUTH PEAK, 32° 57′; 79° 1′ . . 18,754 ft. Cunning.

No. 109. HÁNLE, 32° 48′; 78° 56′, in Ladák, a monastery S. of the Indus.

Loc. *Monastery*. . . . . 15,117 ft. Cunning.

Cunningham gives in his "Ladák", 1854, a view of this monastery (plate 20, p. 313), which is

certainly the highest permanently inhabited place, if the height he quotes p. 465 (15,117 ft.), and on his map, is to be depended upon. Thomson says in "Western Himálaya", 1852, p. 152: "Hánle, a Buddhist monastery inhabited by about twenty lamas, is built on the summit of a steep hill, which rises abruptly out of the plain."

None of us passed through Hánle during our journeys in Ladák.

No. 110. RÓNGO PEAK, 33° 8′; 78° 54′, in Ladák, N. of Hánle.

Loc. *Top of the peak* . . . . . 20,786 ft. Cunning.

No. 111. HÁNLE TSO LAKE, 32° 48′; 78° 54′, in Ladák, W. of the monastery of Hánle . . . . . 14,600 ft. Cunning.

According to Colonel Cunningham, this lake is the largest sheet of fresh water that exists in Ladák. See his "Ladák", p. 142.

No. 112. △ MANGKÁNG, 32° 58′; 78° 53′, in Ladák, S. of the Indus, N.N.W. of Hánle.

Loc. *Encamping ground* . . . . . 15,020 ft. Cunning.

No. 113. TSO MITBÁL SALT LAKE, 33° 25′; 78° 40′, in Pangkóng, S. of the salt lake Tsomognalarí . . . . . 14,167 ft. Schl., Herm.

1, Greiner. 1856, June 26, $1^h\ 30^m$ P.M.

A. 17 957; 61·0; 12. Símla 23·079; 70·0; 78 = 14,163 ft. Mássúri 23 481; 68·2; 86 = 14,171 ft.

See plate No. 4 of the Atlas of Panoramas and Views.

No. 114. TSO RUL SALT LAKE, 33° 33′; 78° 44′. in Pangkóng (referred to Pángur), S. of the salt lake Tsomognalarí . . . . . 14,400 ft. Cunning.

No. 115. TSOMOGNALARÍ SALT LAKE, 33° 39′·8; 78° 38′·5 E, in Pangkóng, near △ Tákung . . . . . 14,010 ft. Schl., Herm.

1, Greiner. 1856, June 29, $10^h\ 40^m$ A.M. *A.* 18·040; 59·7; 36. Símla 23·075; 72·9; 74. Loc. corr. — 33 ft.

Strachey gives as height for this lake 14,300 ft.

The Tsomognalarí lake is divided into two parts by a river delta, analogous to the lakes of Brienz and Thun in Switzerland. The two are about equal in surface; but according to native information, they differ in height, at about 40 ft.; the upper lake, which contains nearly fresh water, almost drinkable, being therefore 14,050 ft.

A panorama was drawn from △ Tákung by Hermann; see panoramic profiles, plate No. VI.

No. 116. LÁNAG PASS, 32° 47′; 78° 38′, in Ladák-Spíti, W. of Hánle.

Loc. 1) *Top of the pass* . . . . . 18,746 ft. Cunning.

„ 2) *Gurkhyám, E. of the Lánag pass* . . . . . 16,437 „ Cunning.

No. 117. PANGMÍG, or PANAMÍK, 33° 48′; 78° 37′, in Pangkóng, near the western border of the salt lake Tsomognalarí.

Loc. *Mean height of the village* . . . . . 14,146 ft. Schl., Herm.

1, Greiner. 1856, July 2, 9h A.M.

A. 17 882; 50·0; 6. Símla 23·087; 68 9; 76 = 14,190 ft. Mässúri 23 417; 66 4; 90 = 14,102 ft.

No. 118. CHÚSHUL, or CHÚSEL, 33° 31′; 78° 36′, in Pangkóng, a small village about 8 miles S. of the salt lake Tsomognalarí.

Loc. *Lower houses* . . . . . 14,406 ft. Schl., Herm.

1, Greiner. 1856, June 28, 9h 30m A.M. *A.* 17·752; 46·2; 25. Símla 23 131; 67·5; 77.

It is one of the highest villages of Western Tíbet.

No. 119. TSO GAM SALT LAKE, 33° 10′; 78° 34′, in Ladák, N. of the Tsomoríri salt lake . . . . . 14,580 ft. Schl., Herm.

1, Greiner. 1856, June 25, 4h P.M.

A. 17 673; 56 8; 12. Símla 23·056; 74 7; 68 = 14,584 ft. Massúri 23 473; 68·9; 83 = 14,576 ft.

See plate No. 4 of the Atlas of Panoramas and Views.

No. 120. △ RÁNAG, 33° 9′; 78° 32′, in Ladák, on the left bank of the Indus.

Loc. *Encampment* . . . . . 14,586 ft. Cunning.

No. 121. △ RÁLDANG, 33° 14′; 78° 27′, in Ladák, on the left bank of the Indus.

Loc. 1) *Level of the Indus* . . . . . 13,858 ft. Schl., Herm.

1, Greiner. 1856, June 24, 6h P.M. *A.* 18 099; 60 2; 8. Massúri 23 391; 70·7; 84.

Loc. 2) *Camp at* △ *Ráldang* . . . . . 14,272 ft. Schl., Herm.

1, Greiner. 1856, June 24, 2h 30m P.M.

A. 17 886; 62 6, 41 Símla 23·032; 78·1; 63 = 14,291 ft. Mässúri 23·406; 72 7; 80 = 14,249 ft.

No. 122. PÚGA, 33° 12′; 78° 25′, in Ládak, a summer village near borax mines, in the Púga valley . . . . . 15,264 ft. Cunning.

No. 123. △ DÓNGAN, 32° 47′; 78° 20′, in Spíti, W. of Hánle.

Loc. *Encampment* . . . . . 16,016 ft. Cunning.

No. 124. NÁGPO GÓNTSIN PASS, 33° 5′; 78° 17′, in Ladák, N. of the Tsomoríri salt lake . . . . . 18,000 ft. Cunning.

No. 125. Tsomoríri Salt Lake, 32° 45′·4; 78° 16′·6 (referred to △ Náma Bingbo, on its southern border), in Spíti . . . . . 15,130 ft. Schl., Herm

1, Greiner. 1856, June 21, 10h A.M. *A.* 17·406; 63·1; 20. Símla 23·131; 71 4; 71. Loc. corr. — 9 ft.

Loc. 2) *Kórzog, a single house on the northern border of the lake* . . . . . 15,349 ft. Schl., Herm

= 219 ft. above the level of the lake; by triangulation.

No. 126. △ Ángkhang, 33° 11′; 78° 14′, in Ladák, W. of the Púga valley.

Loc. *Encampment* . . . . . 16,100 ft. Cunning.

No. 127. Tso Gyagár Salt Lake, 33° 3′; 78° 13′, in Ladák, about 12 miles S. of the Indus.

Loc. *Level of the lake* . . . . . 15,693 ft. Schl., Herm.

1, Greiner. 1856, June 23, 2h 30m P.M. *A.* 17·032; 57·9; 30. Símla 23 071; 77·5; 61

No. 128. Polokónka Pass, 33° 13′; 78° 10′, in Ladák, leading from the Tso kar salt lake into the Ráldang valley . . . . . 16,500 ft. Cunning.

No. 129. Múglab, 34° 1′; 77° 55′, in Pangkóng, E. of Tángtse.

Loc. *Level of the river* . . . . . 13,847 ft. Schl., Herm

1, Greiner. 1856, July 3, 10h 30m A.M.

A. 18 205; 73·4; 22. Símla 23·071; 66·2; 93 = 13,811 ft. Mássúri 23 496; 66 4; 97 = 13,880. Loc. corr. — 16 ft

This is one of the highest permanently inhabited villages of Western Tibet.

No. 130. Tso Kar, or Kháuri Taláu Salt Lake, 33° 16′; 77° 54′, in Ladák, N.E. of the Tsomoríri salt lake.

Loc. *Level of the lake* . . . . . 15,684 ft. Cunning

„ *ditto* . . . . . 15,500 „ Ger.

No. 131. Tángtse, 34° 1′; 77° 46′, in Pangkóng, E.S.E. of Leh.

Loc. 1) *Mean height of the village.* . . . . . 13,111 ft. Schl., Herm.

1, Greiner. 1856, July 3, 5h 45m P.M.

A. 18·622; 70 0; 20. Símla 23·032; 65 7; 93 = 13,110 ft. Mássúri 23·430; 63·3; 98 = 13,112 ft.

Loc. 2) *Dargúg, N. of Tángtse.*

a. *Level of the river* . . . . . 12,777 ft. Schl., Herm.

1, Greiner. 1856, July 3, 10h A.M.

A. 18 887; 63·7; 20. Símla 23·135; 64 4; 97 = 12,782 ft. Mássúri 23·504; 64 6; 97 = 12,772 ft.

b. *Top of the river bank* . . . . . 13,905 ft. Schl., Herm.
= 1,128 ft. above the level of the river; by aneroid.

No. 132. △ DAMÁR, 32° 41′; 77° 40′, in Spíti, S.S.E. of △Kórzog, on the Tsomoríri salt lake . . . . . 15,617 ft. Cunning.

No. 133. △ GYÁM, 32° 54′; 77° 29′, in Spíti, between the Bára Lácha and Lácha Lung pass, on the Chérpa.

Loc. 1) *Level of the river* . . . . . 13,511 ft. Schl., Rob.

8, Pistor. 1856, June 22, 6h A.M. *A.* 18·288; 37·0; 41. Símla 23·142; 64·8; 68.

„ 2) *Upper limit of "Búrze"; Exp. S.* . . . . . 15,680 ft. Schl., Rob.
= 2,169 ft. above Gyám; by aneroid.

No. 134. TÁKELANG, or TUNG LUNG PASS, 33° 24′; 77° 27′, in Spíti-Ladák, N. of △Rúkchin, and S. of Gyú.

Loc. 1) *Top of the pass* . . . . . 17,727 ft. Schl., Rob.
„ *ditto* . . . . . 18,709 „ Mac.
„ *ditto* . . . . . 17,500 „ Cunning.

8, Pistor. 1856, June 26, 3h P.M. *A.* 15·674; 36·3; 0. Símla 23·075; 71·2; 75.

„ 2) *Upper limit of "Táma" (Caragana versicolor), on the S.E. slopes of the Tákelang pass* . . . . . 17,180 ft. Schl., Rob.

8, Pistor. 1856, June 26, 2h P.M.
A. 16 024; 43 3; 0. Símla 23·079; 70 7; 77 = 17,193 ft. Mássúri 23 477; 67 8; 87 = 17,166 ft.

Loc. 3) *Upper limit of "Táma" (Caragana versicolor), on the N.W. slopes of the Tákelang pass* . . . . . 16,821 ft. Schl., Rob.

8, Pistor. 1856, June 26, 4h P.M. *B* = Símla; *C* = Mássúri; *D* = Tákelang pass.
A. 16·197; 37·4; 0. *B.* 23·067; 72 0; 74 = 16,826 ft. *C.* 23 469; 68 2; 86 = 16,798 ft.
D. 15·662; 35·0; 0 = 16,839 ft.

Loc. 4) △*Lársa, south-eastern foot of the Tákelang pass* . . . 16,349 ft. Cunning.

No. 135. △ TSO KA, 35° 58′; 76° 3′E, in Bálti, a small glacier lake on the left side of the Mustágh glacier.

Loc. 1) *Level of the lake* . . . . . 15,724 ft. Schl., Ad.

6, Adie. 1856, Aug. 20, 12h Noon.
A. 17·039; 53 8; 32. Símla 23 220; 65·7; 92 = 15,721 ft. Mássúri 23·620; 65 5; 91 = 15,727 ft.

△Tso ka is above the limit of shrubs.

Loc. 2) △ *Chíring, right side of an affluent of the main Mustágh glacier* . . . . . 16,821 ft. Schl., Ad.

6, Adie. 1856, Aug. 21, 9h 15m A. M.

A. 16·272; 86·9; 75. Leh 19·750; 66·0; 45 = 16,841 ft. Símla 23·220; 62 1; 95 = 16,800 ft.

SECTION *D.* PÁDUM—LEH.

No. 136. △ Rúkchin, 33° 14′; 77° 50′, in Ladák, a pasture ground in an old lake basin between the Lácha Lung and the Tákelang pass.

Loc. 1) *Mean height of the lake basin* . . . . . 15,764 ft. Schl., Rob.

8, Pistor. 1856, June 25, 10h A. M.

A. 16·941; 55·4; 6. Símla 23·079; 70·7; 80 = 15,758 ft. Mássúri 23·457; 72 3; 87 = 15,769 ft.

Loc. *Undefined* . . . . . 16,058 ft. Cunning.

„ 2) *Level of the salt lake Múre Tso, near △Rúkchin* . . 15,517 ft. Schl., Rob.

„ . *ditto* . . 15,864 „ Cunning.

8, Pistor. 1856, June 24, 2h 30m P. M.

A. 17·052; 50 4; 35. Símla 23·032; 77 9; 64 = 15,546 ft. Mássúri 23·406; 72 7; 80 = 15,488 ft.

Loc. 3) △ *Kiángchu, on the southern border of the lake basin* 15,781 ft. Schl., Rob.

8, Pistor. 1856, June 24, 12h Noon.

A. 16·925; 58·6; 0. Símla 23·044; 75·0; 65 = 15,810 ft. Mássúri 23 398, 72 7; 80 = 15,751 ft.

No. 137. Lácha Lung Pass, 33° 3′·8; 77° 35′·6 ⚐, in Spíti, on the road from Lahól to Ladák.

Loc. 1) *Top of the pass* . . . . . 16,750 ft. Schl., Rob.

8, Pistor. 1856, June 23, 9h A. M. *B* = Símla; *C* = Mássúri. Loc. corr. — 6 ft.

A. 16 300; 47·8; 0. *B.* 23·083; 71·1; 75 = 16,772 ft. *C.* 23·457; 69·4; 92 = 16,744 ft.

Loc. 2) △ *Súmdo, S.W. foot of the Lácha Lung pass* . . . . 15,806 ft. Schl., Rob.

8, Pistor. 1856, June 22, 6h P. M. *A.* 16·937; 50·7; 0. Símla 23 119; 75·2; 70.

„ 3) *Upper limit of "Búrze", on the N.E. slopes of the Lácha Lung pass* . . . . . 16,416 ft. Schl., Rob.

8, Pistor. 1856, June 23, 3h P.M. *A.* 16·587; 55·8; 20. Símla 23·067; 77 7; 60.

No. 138. Hallabágh, 33° 56′; 77° 22′, in Ladák, left side of the Indus valley.

Loc. 1) *Mean height of the village* . . . . . 11,376 ft. Schl., Rob.

8, Pistor. 1856, June 28, 1h P.M. *A.* 19 910; 78·4; 6. Símla 23 139; 69 3; 78.

Loc. 2) *Márchalang village, near Hallabágh* . . . . . 11,395 ft. Schl., Rob.

= 19 ft. above Hallabágh; by aneroid.

Cunningham gives for Márchalang 11,522 ft.

No. 139. Úpshi, 33° 42′; 77° 21′, in Ladák, on the left bank of the Indus.

Loc. 1) *Level of the Indus* . . . . . 11,249 ft. Schl., Rob.

8, Pistor. 1856, June 27, 6^h 30^m P. M. *A.* 19·906; 58 6; 26. Mássúri 23 489; 66·9; 81.

„ 2) *Undefined* . . . . . 11,654 ft. Cunning.

No. 140. Gulabgárh, 34° 5′; 77° 20′, in Ladák, in the Indus valley, S.S.E. of Leh.

Loc. *Large garden* . . . . . 10,589 ft. Schl., Rob.

8, Pistor. 1856, June 29, 6^h A.M. *A.* 20·367; 53·6; 45. Símla 23 119; 62·1; 84.

No. 141. Míru, 33° 34′; 77° 19′, in Ladák, on an affluent of the Indus, between Gyá and Úpshi.

Loc. 1) *Mean height of the village* . . . . . 12,248 ft. Schl., Rob.

8, Pistor. 1856, June 27, 10^h A.M.

A. 19 169; 44 6; 20. Símla 23·123; 64 3; 82 = 12,237 ft. Mássúri 23·528; 66·0; 84 = 12,258 ft.

Loc. 2) *Lower limit of "Táma" (Caragana versicolor) between Míru and Gyá* . . . . . 12,950 ft. Schl., Rob.

No. 142. Doltakhúng Peak, 33° 51′·4; 77° 17′·9 E, in Ladák, on the left bank of the Indus, above Leh . . . . . 19,356 ft. Schl., Herm.

Measured from Leh and the Lárimo peak.

The snow-limit on the northern slopes of this peak is at 18,300 ft.

A well marked snow-peak in the Lárimo panorama. Schl., Herm.

No 143. Nymalíng Peak, 33° 49′·7; 77° 16′·9 E, in Ladák, on the left bank of the Indus, S. of Leh . . . . . 20,010 ft. Schl., Rob.

Measured from Leh and the Lárimo peak.

No. 144. Hímis, 33° 59′; 77° 16′, in Ladák, a large monastery, S. of Leh.

Loc. *Entrance to the temple* . . . . . 12,324 ft. Schl., Herm.

5, Thermo-barom. 1856, Sept. 28, 9^h A.M. *A.* 190° 55 Fahr.; 49 3; 2. Leh 19·788; 50·0; 10.

For a view of this large monastery, see plate No. 16 of the Atlas of Panoramas and Views.

No. 145. Leh, 34° 8′·3; 77° 14′·6 E, in Ladák, the capital of this province, 3 miles N. of the Indus.

Loc. 1) *Cistern of the barometer* . . . . . 11,532 ft. Schl., Herm. and Rob.

The detail of the observations upon which this result is based is given pp. 58 and 59, to which we add, that the house of the Gyálpo, seven stories high (see plate No. 9 of the Atlas of Panoramas and Views), is 145 ft. high.

The height of Leh, as given by previous observers, is: 11,712 ft. Cunning, 11,213 Mac., 11,800 Thoms.

Loc. 2) *Plain at the prayer wall, at the lower end of the town* 11,527 ft. Schl., Herm. and Rob.

Directly measured.

Loc. 3) *Entrance to a monastery, on the top of a hill, N.E. of Leh* . . . . . 12,147 „ Schl., Rob.

Trigonometrically measured from the Lárimo peak.

Loc. 4) *Level of the Indus at Leh* . . . . . 10,723 „ Schl., Rob.

= 809 ft. below the barometer at Leh; trigonometrically measured.

„ 5) *Fine Cirrhi, measured from the Lárimo peak* . . . . 26,843 ft. Schl., Herm.

„ 6) △*Kurumpúlu, on the southern foot of the Laóche pass* 15,470 „ Schl., Herm

1, Greiner. 1856, July 21, 4^h P.M. *A.* 17·016; 48 6, 57. Leh 19 611; 63 7; 52.

No. 146. MÍRU PEAK, 33° 47′·2; 77° 14′·3 E, in Ladák, W. of Míru and on the left bank of the Indus . . . . . 20,080 ft. Schl., Rob.

Measured from Leh and the Lárimo peak. It forms a prominent object in the Lárimo panorama. Schl., Herm.

No. 147. GYÁ, 33° 29′; 77° 18′, in Ladák, on an affluent of the Indus.

Loc. *Large Buddhist temple* . . . . . 13,518 ft. Schl., Rob.

„ *ditto* . . . . . 13,587 „ Cunning

8, Pistor. 1856, June 27, 7^h A.M. *A.* 18 257; 16·8; 42. Simla 23 095; 60 6; 92.

At Gyá, one of the highest permanently inhabited villages, is also the upper limit of cultivation of grain.

No. 148. TÖK PEAK, 33° 56′·4; 77° 4′·9 E, in Ladák, on the left bank of the Indus, S.S.W. of Leh . . . . . 21,034 ft. Schl., Rob

Measured from Lárimo peak; the detail of the observations and calculations is given pp. 69 and 70. Cunningham gives in round members 21,000 ft.

The Tök peak presents itself beautifully from Leh; it also is distinctly visible from Lárimo. Schl., Herm.

No. 149. KÁRKYAG, 33° 4′; 77° 3′, in Zánkhar, on the right side of the Shung valley, near the Tséri Tsenn.

Loc. *Level of the Shung* . . . . . 13,613 ft. Schl., Ad.

6, Adie. 1856, June 20, 3^h P.M. *B* = Símla; *C* = Mássúri.

A. 18·288; 61 9; 24. *B.* 23·106; 72·7; 54. — 66 = 13,634 ft. *C.* 24 469; 70·2; 78. 70 = 13,591 ft.

Kárkyag is the highest village on the northern slopes of the Shínku La pass. At this village is the upper limit of cultivation in the Shung valley.

No. 150. △ DÁNSE, 33° 6′; 77° 3′, in Zánkhar, on the right bank of the Shung, below Kárgyag.

Loc. *Level of the Shung* . . . . . 13,083 ft. Schl., Ad.

6, Adie. 1856, June 20, 5h 30m P.M. *B* = Símla; *C* = Mássúri. Loc. corr. — 55 ft.
A. 18 583; 53·8; 29. *B*. 23·102; 70·2; 59 = 13,114 ft. *C*. 23·438; 69·1; 89 = 13,051 ft.

No. 151. NYÉMO, 34° 9′; 77° 3′, in Ladák, right bank of the Indus, W. of Leh.

Loc. *Mean height of the village* . . . . . 10,258 ft. Schl., Rob.
„ *ditto* . . . . . 10,500 „ Cunning.

8, Pistor. 1856, Oct. 5, 7h A.M. *A*. 20·626; 44·6; 10. Símla 23·197; 53·1; 83.

No. 152. YÁLLE, 33° 13′; 77° 1′, in Zánkhar, on the left bank of the Shung.

Loc. *Bridge across the Shung below the village* . . . . . 12,702 ft. Schl., Ad.

6, Adie. 1856, June 21, 9h 40m A.M. *A*. 18 957; 61 5; 42. Símla 23·131; 70·5; 72.

No. 153. SÚLLE, 33° 14′; 76° 59′, in Zánkhar, a now decayed and nearly deserted village, on the left bank of the Shung, above the river.

Loc. 1) *Mean height of the village* . . . . . 12,717 ft. Schl., Ad.

6, Adie. 1856, June 22, 6h A.M. *A*. 18·850; 34·3; 28. Símla 23 142; 64·6; 68. + 56 ft.

„ 2) *Level of the Shung, 2 miles below Súlle* . . . . . 12,204 ft. Schl., Ad.

6, Adie. 1856, June 22, 8h A.M. *A*. 19·221; 46·8; 39. Símla 23·131; 67·5; 69.

„ 3) *Upper limit of birch* . . . . . 12,900 ft. Schl., Ad.

„ 4) *Upper limit of yews* . . . . . 12,700 ft. Schl., Ad.

Loc. 3 and 4 are referred to Súlle.

No. 154. MÚNNE, 33° 22′; 76° 56′, in Zánkhar, on the left bank of the Shung, but considerably above it.

Loc. 1) *Mean height of the village* . . . . . 12,320 ft. Schl., Ad.

6, Adie. 1856, June 22, 6h A.M. *A*. 19·162; 43·5; 38. Símla 23·146; 64·0; 68. + 52 ft.

„ 2) *Level of the Shung* . . . . . 11,984 ft. Schl., Ad.

Referred to Múnne.

No. 155. PÁDUM, 33° 28′·0; 76° 54′·3 E, in Zánkhar, on the left bank of the Tsánskar.

Loc. 1) *Entrance to the fort* . . . . . 11,592 ft. Schl., Ad.

14, Newman. 1856, June 24, 2h P.M.
A. 19·642; 63·5; 3. Símla 23·032; 77·9; 64 = 11,604 ft. Mássúri 23·406; 72·7; 80 = 11,579 ft.

Loc. 2) *Mean height of the broad valley* . . . . . 11,550 ft. Schl., Ad.

Trigonometrically measured.

No. 156. SÍNGE PASS, 33° 58′; 76° 55′, in Zánkhar-Ladák, between the Zánkhar and Indus . . . . . 16,952 ft. Thoms.

No. 157. SÁSPOLA, 34° 10′; 76° 52′, in Ladák, on the right bank of the Indus, W. of Leh.

Loc. 1) *Mean height of the village* . . . . . 10,357 ft. Schl., Rob.

„ *ditto* . . . . . 10,460 „ Cunning.

8, Pistor. 1856, Oct. 5, 1h P.M. *A.* 20·642; 61·9; 10. Símla 23 209; 65 7; 75.

„ 2) *Garden at the village Phiáng, W. of Leh* . . . . . 11,265 ft. Schl., Rob.

8, Pistor. 1856, Oct. 4, 2h 30m P.M. *A.* 19 989; 59 4; 6. Símla 23·217; 66·4; 72.

No. 158. KYAGÁM, 33° 38′; 76° 41′, in Zánkhar, in the Péntse Sámpo valley.

Loc. *Open place in the village* . . . . . 12,191 ft. Schl., Ad.

6, Adie. 1856, June 28, 7h A.M. *A.* 19·225; 46·2; 48. Símla 23 111; 61·0; 78. + 50 ft.

No. 159. △ YÚRU KIÓM, 34° 8′; 76° 37′, in Ladák, on the north-eastern foot of the Kánji pass.

Loc. *Encamping ground* . . . . . 13,408 ft. Schl., Ad.

6, Adie. 1856, July 2, 6h A.M. *A.* 18·402; 48·6; 30. Símla 23·067; 66 0; 86. + 62 ft

Shrubs occur here in remarkable quantities.

No. 160. NÚRLA, 34° 12′; 76° 37′, in Ladák, on the right bank of the Indus, W. of Leh.

Loc. *Mean height of the village* . . . . . 9,772 ft. Schl., Rob.

„ *ditto* . . . . . 10,065 „ Cunning.

8, Pistor. 1856, Oct. 6, 7h A.M. *A.* 20·997; 44·2; 44. Símla 23·193; 53·2; 78.

No. 161. KÁNJI, 34° 9′; 76° 36′, in Ladák, on the left bank of an affluent of the Indus.

Loc. *Level of the river* . . . . . 12,787 ft. Schl., Ad.

6, Adie. 1856, July 2, 10h A.M. *B* = Símla; *C* = Mässúri.

A. 18·800; 59·4; 38. *B.* 23·028; 69·3; 78 = 12,785 ft. *C.* 23 434; 65·1, 95 = 12,789 ft.

It is the highest village in this valley.

No. 162. ÁBRANG KÓMA, 33° 46′; 76° 34′, in Zánkhar, the "Upper Ábrang", in the Péntse Sámpo valley . . . . . 12,375 ft. Schl., Ad.

6, Adie. 1856, June 28, 12h Noon. *A.* 19·150; 63·0; 48. Símla 23 139; 69·3; 78. — 53 ft.

Here is also the upper limit of cultivation in the Péntse Sámpo valley.

No. 163. KÁNJI PEAK, 34° 7′; 76° 34′, in Dras-Ladák, near the Kánji pass, but to the west of it.

Loc. 1) *Top of the peak* . . . . . 18,186 ft. Schl., Ad.

6, Adie. 1856, July 1, 11h 30m A.M. *B* = Leh; *C* = Símla; *D* = Mássúri.
A. 15·508; 47·7; 0. *B*. 19·677; 76·3; 2 = 18,196 ft. *C*. 23·075; 76·5; 61 = 18,210 ft.
D. 23·450; 71·6; 89 = 18,151 ft.

A panorama was drawn from this peak by Adolphe: see panoramic profiles, plate No. VI.

Loc. 2) *Kánji pass, leading from Dras to Ladák* . . . . . 17,223 ft. Schl., Ad.

6, Adie. 1856, July 1, 5h P.M. *B* = Leh; *C* = Mássúri.
A. 15 969; 46 0; 8. *B*. 19 575; 77 7; 8 = 17,232 ft. *C*. 23·382; 70 0; 92 = 17,214 ft.

No. 164. LÁMA YÚRU, 34° 11′; 76° 34′, in Ladák, S.W. of Káltse and the Indus.

Loc. 1) *Large fields at the base of the village* . . . . . 11,480 ft. Schl., Rob.

8, Pistor. 1856, Oct. 6, 5h 30m P.M. *B* = Símla; *C* = Mássúri; *D* = Srinágger.
A. 19·772; 51 6; 10. *B*. 23·209; 62·4; 72 = 11,507 ft. *C*. 23·579; 61·9; 87 = 11,478 ft.
D. 24·796; 67 1; 33 = 11,455 ft.

„ 2) *Entrance to the large monastery* . . . . . 11,673 ft. Schl., Herm.
= 193 ft. above the field at the village; by aneroid.

No. 165. PHÓTO LA PASS, 34° 11′; 76° 31′, in Ladák, W. of Láma Yúru, between this place and Henaskút.

Loc. *Top of the pass* . . . . . 13,555 ft. Schl., Rob.
„ *ditto* . . . . . 13,240 „ Cunning.

8, Pistor. 1856, Oct. 7, 10h A.M.
A. 18 363; 43·9; 6. Símla 23·245; 65 1; 68 = 13,566 ft. Mássúri 23·622; 65·1; 90 = 13,544 ft.

No. 166. △ BOK, 33° 51′; 76° 29′, in Zánkhar, at the southern foot of the Péntse La, a pass leading from Zánkhar to Dras.

Loc. 1) *Level of the river* . . . . . 13,287 ft. Schl., Ad.

6, Adie. 1856, June 29, 7h A.M. *A*. 18·500; 47·1; 43. Símla 23 119; 62·8; 83. + 61 ft.

No trees grow here, but a great quantity of shrubs.

Loc. 2) *Lower end of the Búson glacier* . . . . . 13,382 ft. Schl., Ad.
= 95 ft. above the level of the river; by aneroid.

No. 167. HÁNU YÓGMA, 34° 30′; 76° 32′, in Ladák, E. of Da, on an affluent of the Indus.

Loc. 1) *Level of the river* . . . . . 10,418 ft. Schl., Ad.

6, Adie. 1856, July 7, 2h P.M. *B* = Símla; *C* = Mássúri.
A. 20·477; 70·3; 1. *B*. 23 079; 67 8; 92. — 33 = 10,435 ft. *C*. 23·438; 67·3; 91. — 38 = 10,401 ft.

Loc. 2) *Upper limit of shrubs on the northern slopes* . . . . . 13,400 ft. Schl., Ad.
= 2,982 ft. above Hánu Yógma; by aneroid.

The upper limit of shrubs is here remarkably low.

No. 168. KÁRBU, 34° 15′; 76° 27′, in Dras, in the Kánji valley, S. of Da.

Loc. 1) *Mean height of the valley* . . . . . 11,617 ft. Schl., Ad.

6, Adie. 1856, July 3, 12h Noon.

A. 19·615; 67·1; 6. Símla 23·079; 66·4; 91 = 11,622 ft. Mássúri 23·457; 66·7; 97 = 11,616 ft. Loc. corr. — 32 ft.

8, Pistor. 1856, Oct. 7, 3h P.M.

A. 19·733; 61·5; 6. Símla 23·217; 64·0; 63 = 11,624 ft. Mássúri 23·599; 61·5; 93 = 11,605 ft.

At Kárbu there are a great many trees, especially willows and poplars.

Loc. 2) *Námiga pass, between Kárbu and Váka* . . . . . 12,646 ft. Schl, Rob.

„ *ditto* . . . . . 13,000 „ Cunning.

8, Pistor. 1856, Oct. 7, 5h 30m P.M.

A. 18·926; 42·4; 0. Símla 23·217; 60·8; 67 = 12,662 ft. Mássúri 23·591; 59·5; 93 = 12,629 ft.

No. 169. UMÁSI PASS, 33° 21′; 76° 26′, in Zánkhar-Kishtvár, in the Bríma range, S.W. of Pádum . . . . . 18,123 ft. Thoms.

No. 170. MALISHÓN, 34° 23′; 76° 26′, in Ladák, S. of Da.

Loc. *Mean height of the village* . . . . . 10,753 ft. Schl., Ad.

6, Adie. 1856, July 3, 6h P.M. *A.* 20 221; 61·7. Kárbu 19·607; 64·0.

No. 171. TÍMTI LA PASS, 34° 12′; 76° 25′, in Ladák, on the left side of the Kánji valley.

Loc. 1) *Top of the pass* . . . . . 15,548 ft. Schl., Ad.

6, Adie. 1856, July 2, 5h P.M. *A.* 16·941; 46·2; 40. Mássúri 23·378; 67·3; 95.

„ 2) △ *Tímti Do, on the western foot of the Tímti La pass* 13,645 ft. Schl., Ad.

6, Adie. 1856, July 3, 7h A.M. *A.* 18·209; 45·9; 50. Símla 23·052; 62·8; 95. + 65 ft.

„ 3) *Upper limit of shrubs on the western slopes of the Tímti La pass* . . . . . 14,460 ft. Schl., Ad.
= 1,088 ft. below the Tímti La pass; by aneroid.

No. 172. DA, 34° 32′·6; 76° 25′·1 ⚐, in Ladák, near the right bank of the Indus.

Loc. *Mean height of the village* . . . . . 9,640 ft. Schl., Ad.
= 1,113 ft. below the Malishón village; by aneroid.

Nos. 173-8. BRÍMA PEAKS, in Kishtvár—Zánkhar.

No. 173. BRÍMA PEAK No. 3 ⏄, 33° 27′·3; 76° 8′·4 . . . . . 21,289 ft. G. T. S.

No. 174. BRÍMA PEAK No. 4 ⏄, 33° 27′·4; 76° 4′·0 . . . . . 20,054 ft. G. T. S.

No. 175. BRÍMA PEAK No. 5 ⏄, 33° 30′·3; 76° 2′·1 . . . . . 21,059 ft. G. T. S.

No. 176. BRÍMA PEAK No. 6 ⏄, 33° 36′·5; 76° 7′·0 . . . . . 21,584 ft. G. T. S.

No. 177. BRÍMA PEAK No. 7 ⏄, 33° 34′·9; 75° 58′·2 . . . . . 18,739 ft. G. T. S.

No. 178. BRÍMA PEAK No. 8 ⏄, 33° 44′·0; 76° 6′·1 . . . . . 20,988 ft. G. T. S.

Peaks No. 3 and 8 are distinctly seen in the Kánji panorama; the position of the other peaks is contained in the respective hypsometrical diagram. Schl., Ad.

SECTION *E*. MÚLBE—KIÚḴ KIÔL—ÉLCHI.

No. 179. △ SIKÁNDER MOKÁM, 36° 3′; 78° 29′, in Turkistán, Karakásh valley, with an old ruined fort.

Loc. *Level of the Karakásh* . . . . . 13,864 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 19, 10^{h} A.M. *B* = Leh; *C* = Símla.
A. 188° 00 Fahr.; 68 0; 0. *B*. 19·768; 61·9; 58 = 13,873 ft. *C*. 23 197; 64 2; 92 = 13,855 ft.

No. 180. BÚSHIA, 36° 26′; 78° 19′ ⏋, in Turkistán, tents and caves inhabited by nomadic Turks.

Loc. 1) *Headman's tent* . . . . . 9,310 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 26, 2^{h} P.M. *B* = Símla; *C* = Màssúri.
A. 195°·49 Fahr.; 66·9; 23. *B*. 23 139; 61·2; 96. — 23 = 9,314 ft. *C*. 23·516; 63·1; 93. — 27 = 9,306 ft.

Loc. 2) *Level of the Khótan river* . . . . . 9,290 ft. Schl., Herm.

= 20 ft. below the headman's tent; by aneroid.

No. 181. △ BASHMALGÚN, 35° 50′; 78° 17′ ⏋, in Turkistán, name of a small island in the Karakásh river.

Loc. *Level of the Karakásh* . . . . . 14,207 ft. Schl., Herm.

5, Thermo-barom. 1856, Aug. 16, 7^{h} P.M. *B* = Leh; *C* = Símla. Loc. corr. — 3 ft.
A. 187° 04 Fahr.; 55·0; 0. *B*. 19·579; 68·0; 37 = 14,156 ft. *C*. 23·056; 65 1; 93 = 14,257 ft.

Shrubs of 4 to 5 ft. in height cover this spot in great quantities, but not a trace of grass-vegetation is to be found here.

No. 182. △KÁFIR DÉRA, 35° 50′; 78° 12′E, in Turkistán, on the right bank of the Karakásh river. . . . . 14,420 ft. Schl., Herm.

= 213 ft. above △Bashmalgún.

No. 183. △SÚMGAL, 36° 8′; 78° 5′E, in Turkistán, on the right bank of the Karakásh valley.

Loc. *Level of the Karakásh.* . . . . . 13,215 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 22, 8h A.M. *B* = Leh; *C* = Símla.

A. 189°·00 Fahr.; 53 6; 25. *B*. 19·760; 56·7; 70 = 13,219 ft. *C*. 23·197; 60 4; 95 = 13,210 ft.

No. 184. KIÚK KIÖL SALT LAKE, 35° 40′·0; 77° 56′·0E, in Turkistán, in the Karakásh valley.

Loc. 1) *Level of the lake* . . . . . 15,460 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 13, 9h 30m A.M. *B* = Leh; *C* = Mássúri. Loc. corr. — 4 ft.

A. 185°·43 Fahr.; 55·4; 24. *B*. 19·824; 68·7; 22 = 15,492 ft. *C*. 23·591; 65·8; 95 = 15,428 ft.

Loc. 2) *Hot springs below the lake* . . . . . 15,010 ft. Schl., Rob.

= 450 ft. below the level of the lake; by aneroid.

No. 185. △SÚGET, 36° 10′·4; 77° 50′·1E, in Turkistán, one of the finest halting places for caravans trading between Ladák and Khótan, 2 miles distant from the left bank of the Karakásh . . . . . 12,960 ft. Schl., Herm.

= 708 ft. above △Gulbagashén; by aneroid.

No. 186. △ GULBAGASHÉN, 36° 9′; 77° 45′, in Turkistán, Yáshem (nephrite) quarries the right side of the Karakásh valley.

Loc. *Level of the Karakásh* . . . . . 12,252 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 31, 10h A.M.. *B* = Leh; *C* = Símla. Loc. corr. — 3 ft.

A. 190° 45 Fahr.; 56 1; 25. *B*. 19·654; 63·5; 62 = 12,210 ft. *C*. 23·131; 63·5; 99 12,294 ft.

No. 187. △ CHÓNGIL DÁNE ÁKSE, 35° 14′; 77° 39′, in Núbra, on the Kissiláb, an affluent of the Shayók.

Loc. 1) *Level of the Kissiláb.* . . . . . 15,869 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 7, 6h P.M. *B* = Leh; *C* = Símla; *D* = Mássúri.

A. 184°·40 Fahr.; 56·2; 0. *B*. 19 619; 74·8; 21 = 15,855 ft. *C*. 23 075; 65·7; 90 = 15,883 ft.

D. 23 450; 65·8; 92 = 15,868 ft.

Loc. 2) △*Chongtásh, higher up the Kissiláb* . . . . . 16,318 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 5, 9h A.M. *B* = Leh; *C* = Símla; *D* = Mássúri.

A. 183°·85 Fahr.; 46·6; 41. *B*. 19·808; 54·5; 62 = 16,331 ft. *C*. 23 233; 62·1; 99 = 16,319 ft.

D. 23·607; 63·7; 96 = 16,305 ft.

No. 188. △ Sultán Chúskun, 35° 4′; 77° 38′, in Núbra, on the confluence of the Kissiláb and the Shayók.

Loc. *Level of the confluence* . . . . . 14,440 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 7, 7h 30m A.M. *B* = Leh; *C* = Símla.
A. 186·68 Fahr.; 45·5; 66. *B*. 19 677; 54·5; 62 = 14,460 ft. *C*. 23·091; 60·3; 97 = 14,420 ft.

No. 189. △ Murgái, 35° 9′; 77° 37′, in Núbra, N.E. of the Sásser pass.

Loc. 1) *Encamping ground* . . . . . 15,448 ft. Schl., Rob.
„ *ditto* . . . . . 15,100 „ Thoms.

5, Thermo-barom. 1856, Sept. 6, 12h Noon. *A*. 185°·15 Fahr.; 59·0; 4. Leh 19·681; 60·8; 65.

Loc. 2) △ *Púllak, below* △ *Murgái* . . . . . 15,027 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 5, 6h P.M. *B* = Leh; *C* = Símla; *D* = Mássúri.
A. 185° 92 Fahr.; 58 8, 7. *B*. 19 670; 74 8; 40 = 15,014 ft. *C*. 23·131; 63 0; 98 = 15,046 ft.
D. 23 500; 62 8; 97 = 15,022 ft.

Loc 3) *Spring above* △ *Murgái, and upper limit of shrubs*. . 16,382 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 6, 2h P.M. *B* = Leh; *C* = Símla; *D* = Mássúri.
A. 183°·87 Fahr.; 64·4; 0. *B*. 19·689; 80·8; 28 = 16,363 ft. *C*. 23·139; 64·8; 97 = 16,394 ft.
D. 23·528; 64·0; 94 = 16,388 ft.

Loc. 4) *Snow limit on the northern slopes* . . . . . 16,890 ft. Schl., Rob.

No. 190. △ Chilgáne, or Voháb Chilgáne Plateau, 35° 58′; 77° 35′, in Turkistán, E. of the Yárkand road, covered with saline efflorescences.

Loc. *Mean height of the plateau* . . . . . 16,419 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 10, 7h P.M. *B* = Leh; *C* = Símla.
A. 183°·25 Fahr.; 41 0; 25. *B*. 19·559; 71·6; 22 = 16,390 ft. *C*. 23·079; 63·7; 98 = 16,447 ft.

A few patches covered with grass; shrubs more numerous.

The general form of this extensive plateau is well seen from the Aktágh panorama. See plate No. VII. of the panoramic profiles. Schl., Herm.

No. 191. △ Búllu, 35° 49′; 77° 31′ E, in Turkistán, on the northern foot of the Karakorúm pass, on the Yárkand river.

Loc. 1) *Level of the Yárkand river* . . . . . 16,883 ft. Schl., Rob.

5, Thermo-barom. 1856, Aug. 10, 11h A.M. *B* = Leh; *C* = Símla.
A. 182° 80 Fahr.; 55 4; 16. *B*. 19 635; 77·0; 11 = 16,879 ft. *C*. 23·095; 63·3; 90 = 16,886 ft.

Near △ Búllu, at Aktágh, a panorama was drawn by Hermann. See plate No. VII. of the panoramic profiles. Patches covered with scanty grass and shrub vegetation are to be found near △ Búllu.

Loc. 2) *Highest mountains between the Búllu and Chadartásh plateau* . . . . . 18,152 ft. Schl., Herm.

Trigonometrically measured. In general, the mountains in the plateaux attain only a relative height of 600—800 ft.

Loc. 3) *Level of the Yárkand river at* △*Chadartásh* . . . . . 16,258 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 3, 4h P.M. *B* = Símla; *C* = Massúri.

A. 183°·68 Fahr.; 48·4; 0. *B*. 23·048; 65·8; 92 = 16,249 ft. *C*. 23·442; 67·1; 93 = 16,267 ft.

From △Chadartásh the road branches off eastwards to the Kissilkorum and to Khótan.

Loc. 4) *Level of the Yárkand river at* △*Váliksha* . . . . . 15,104 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 3, 8h A.M. *B* = Leh; *C* = Símla.

A. 185°·54 Fahr.; 48·0; 0. *B*. 19·681; 52·9; 64 = 15,134 ft. *C*. 23·067; 60·3; 97 = 15,074 ft.

There is, at the same level, a group of fine springs at △Váliksha.

No. 192. △Kotásh Chílga, 36° 7′; 77° 31′, in Turkistán, on the route from Yárkand to Ladák.

Loc. *Encamping ground* . . . . . 15,598 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 2, 7h A.M. *A*. 184°·58 Fahr.; 21·2; 10. Leh 19·689; 51·6; 66.

No. 193. △Chíbra, 36° 5′; 77° 23′, in Turkistán, near the confluence of two rivers, on the route from Ladák to Turkistán.

Loc. *Encamping ground* . . . . . 16,900 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 2, 2h P.M. *A*. 182°·69 Fahr.; 57·6; 0. Leh 19·619; 60·8; 50.

No. 194. Kárdong, 34° 26′; 77° 18′, in Núbra, on the left bank of the Nángtse, an affluent of the Shayók.

Loc. 1) *Mean height of the village* . . . . . 12,878 ft. Schl., Rob.

5, Thermo-barom. 1856, July 26, 9h A.M. *A*. 189°·34 Fahr.; 56·1; 66. Leh 19·662; 55·4; 88.

Loc. 2) *Level of the Nángtse at Kárdong* . . . . . 11,949 ft. Schl., Rob.

5, Thermo-barom. 1856, July 26, 10h A.M. *B* = Leh; *C* = Kárdong.

A. 190°·92 Fahr.; 58·1; 61. *B*. 19·662; 57·2; 78 = 11,946 ft. *C*. 189°·35 Fahr.; 57·0; 50 = 11,952 ft.

No. 195. Kyagár, 34° 43′; 77° 14′, in Núbra, left bank of the Chéra, or Núbra, an affluent of the Shayók.

Loc. *Mean height of the village* . . . . . 11,180 ft. Schl., Rob.

5, Thermo-barom. 1856, July 28, 8h A.M. *A*. 193°·98 Fahr.; 57·4; 77. Leh 19·689; 54·1, 76.

No. 196. DRÍSHA, 34° 47′; 77° 13′, in Núbra, left bank of the Chéra, or Núbra, an affluent of the Shayók.

Loc. 1) *Mean height of the village* . . . . . 10,492 ft. Schl., Rob.

= 46 ft. below the hot spring at Pangmíg, or Panamík.

„ 2) *Hot spring "Chúrun", below Pangmíg, or Panamík* . 10,538 ft. Schl., Herm.

1, Greiner. 1856, July 28, 6h P.M. *B* = Leh; *C* = Mássúri; *D* = Símla.
A. 20·359; 56·8; 73. *B*. 19·646; 60·8; 53 = 10,541 ft. *C*. 23·410; 70·8; 91 = 10,520 ft.
D. 23·052; 70 0; 86 = 10,553 ft.

No. 197. DÍSKIT, 34° 35′; 77° 10′, in Núbra, left bank of the Shayók.

Loc. *Level of the Shayók* . . . . . 9,968 ft. Schl., Rob.

5, Thermo-barom. 1856, July 27, 9h A.M. *A*. 194°·30; 60·4; 69. Leh 19·677; 54·3; 76.

No. 198. JÁNGLUNG PASS, 35° 1′; 77° 8′, in Núbra, on the small ridge between the Chéra and Shayók valley.

Loc. 1) *Top of the pass* . . . . . 15,322 ft. Schl., Rob.

5, Thermo-barom. 1856, Sept. 9, 11h A.M. *B* = Símla; *C* = Mássúri.
A. 185°·60 Fahr.; 53·4; 19. *B*. 23·217; 64·8; 78 = 15,314 ft. *C*. 23 587; 68·7; 92 = 15,330 ft.

Loc. 2) *Highest hot spring near △Jánglung* . . . . . 11,890 ft. Schl., Rob.

1, Greiner. 1856, July 30, 6h P.M. *B* = Mássúri; *C* = Leh.
A. 19 430; 74 1; 18. *B*. 23 390; 66 0; 93 = 11,882 ft. *C*. 23·024; 64·8; 96 = 11,898 ft.

No. 199. KÁLTSE, 34° 14′; 76° 40′, in Ladák, right bank of the Indus, W. of Leh.

Loc. 1) *Level of the Indus* . . . . . 9,690 ft. Schl., Rob.

8, Pistor. 1856, Oct. 6, 11h A.M. *B* = Símla; *C* = Mássúri. Loc. corr. — 44 ft.
A. 21·107; 59 7; 8. *B*. 23·209; 62·1; 83 = 9,671 ft. *C*. 23·614; 67·5; 91 = 9,708 ft.

The bridge at Káltse was 44 ft. above the level of the Indus.

Loc. 2) *Undefined* . . . . . 10,024 ft. Cunning.

No. 200. KÁRGIL, 34° 30′·0; 76° 4′·0 E, in Dras, on the left bank of the Kártse.

Loc. 1) *Thána* . . . . . 8,845 ft. Schl., Rob.

8, Pistor. 1856, Oct. 9, 9h A.M.
A. 21 835; 48·0; 37. Símla 23·292; 54·0; 59 = 8,829 ft. Mássúri 23 693; 62·8; 90 = 8,861 ft.

Loc. 2) *Level of the Kártse* . . . . . 8,617 ft. Schl., Rob.

8, Pistor. 1856, Oct. 11, 9h A.M. *A*. 21·989; 51 4; 27. Srinágger 24·945; 54·7; 49.

SECTION *F.* DRAS — SHÍGAR — YÁRKAND.

No. 201. Téshi Tóngze, 34° 0′; 76° 40′, in Dras, district of Rángdum.

Loc. *Mean height of the village* . . . . . 13,321 ft. Schl., Ad.

6, Adic. 1856, June 30, 8h 35m A.M. *B* = Símla; *C* = Massúri.

A. 18·504; 58·1; 42. *B.* 23·099; 68 5; 72 = 13,307 ft. *C.* 23·512; 67 5; 93 = 13,335 ft.

This is the highest village of the Rángdum district at the upper limit of cultivation.

No. 202. Háldi, 35° 29′; 76° 37′, in Bálti, in the Dómsum valley, near its junction with the Chetánga valley.

Loc. 1) *Mean height of the village* . . . . . 8,639 ft. Schl., Ad.

6, Adic. 1856, July 19, 2h P.M. *A.* 21·800; 90·3; 10. Símla 23 017; 67 3; 91.

„ 2) *Páyu Tang pass between Háldi and Gom* . . . . . 8,850 ft. Schl., Ad.

= 211 ft. above Hákdi; by aneroid.

No. 203. △ Brúmi Ráma, 35° 37′; 76° 36′, in Bálti, on the right side of the Sóspor glacier, N. of Húshe.

Loc. 1) *Encamping ground* . . . . . 13,053 ft. Schl., Ad.

6, Adic. 1856, July 16, 2h P.M.

A. 18 618; 71·2; 10. Símla 22 981; 65 5; 95 = 13,054 ft. Massúri 23 359; 64·9; 98 = 13,052 ft.

A great many tree-like shrubs are still found here.

Loc. 2) *Lower end of Sóspor glacier, and source of the Sóspor* 11,272 ft. Schl., Ad.

6, Adic. 1856, July 16, 9h A.M.

A. 19 784; 57 0; 28. Leh 19 595; 65 5; 28 = 11,264 ft. Símla 23 009; 62·6; 99 = 11,280 ft.

In its environs is a remarkably fine shrub-jungle.

Loc. 3) *Confluence of the Chogospáng glacier with the main Sóspor glacier* . . . . . 13,610 ft. Schl, Ad.

6, Adic. 1856, July 17, 8h A.M

A. 18 197; 59 4; 17. Leh 19 619; 61 0; 18 = 13,633 ft. Símla 22·965; 61 2, 99 = 13,586 ft

Loc. 4) *Above △ Baról Brog, right side of the Sóspor glacier* 14,413 ft. Schl, Ad.

6, Adic. 1856, July 18, 1h 30m P.M. *A.* 17 658; 56 7; 43 Massúri 23 347; 67 5; 93.

„ 5) *Upper limit of shrubs near △ Baról Brog* . . . . 15,520 ft. Schl., Ad.

Referred by aneroid to △ Baról.

„ 6) *Highest point reached on the Baról glacier, an affluent on the right side of the Sóspor glacier* . . . . . 17,013 ft. Schl., Ad

6, Adic. 1856, July 18, 1h P.M.

A. 16 071; 49 5; 30. Símla 22 981; 69 6; 91 = 17,063 ft. Massúri 23·355; 67 5; 98 = 17,022 ft.

No. 204. Húshe, 35° 33′·5; 76° 35′·3 E, in Bálti, right side of the Chetánga valley.

Loc. *Mosque at the south side of the village, high above the level of the river* . . . . . 10,440 ft. Schl., Ad.

6, Adie. 1856, July 15, 9h A.M.

A. 20·454; 72 1; 25. Símla 23 024; 65·1; 93 = 10,414 ft. Mássúri 23·446; 65 3; 94 = 10,166 ft. Loc. corr. — 18 ft.

At Húshe is also the upper limit of walnuts; there are a few growing up to about 10,800 ft., but these no longer bear fruit.

No. 205. Kánde, 35° 31′; 76° 35′, in Bálti, Chetánga valley, between Marzigón and Húshe.

Loc. *Mean height of the village* . . . . . 9,466 ft. Schl., Ad.

6, Adie. 1856, July 19, 5h A.M. *A.* 21 146; 52·2. Háldi 21 792; 55 0.

No. 206. △ Kánji Súmdo, 34° 6′; 76° 33′, in Dras, at the south-western foot of the Kánji pass.

Loc. 1) *Encamping ground* . . . . . 13,968 ft. Schl., Ad.

6, Adie. 1856, July 1, 6h A.M. *A.* 17 859; 27·9; 60. Símla 23·028; 65 7; 64.

„ 2) *Upper limit of shrubs* . . . . . 14,120 ft. Schl., Ad.

= 152 ft. above the encamping ground; by aneroid.

No. 207. Marzigón, 35° 29′; 76° 33′, in Bálti, right side of the Chetánga valley.

Loc. *Open place in the village, not much above the level of the river* . . . . . 8,582 ft. Schl., Ad.

6, Adie. 1856, July 18, 12h 20m P.M. *A.* 21·733; 82 8, 15. Leh 19 646; 79 7; 15.

No. 208. Póen, 34° 49′; 76° 28′, in Bálti, on the left bank of the Shayók, near its confluence with the Chórbad Lúngpa.

Loc. *Level of the Chórbad Lúngpa* . . . . . 8,879 ft. Schl., Ad.

6, Adie. 1856, July 10, 2h P.M. *B* = Símla; *C* = Mássúri.

A. 21·599; 81·9; 13. *B.* 23·009; 68·4; 91 = 8,882 ft. *C.* 23·375; 68 7; 91 = 8,876 ft.

No. 209. Chórbad Pass, 34° 39′; 76° 27′, in Bálti, leading from the Indus to the Shayók valley.

Loc. *Top of the pass* . . . . . 16,976 ft. Schl., Ad.

6, Adie. 1856, July 8, 2h P.M. *B* = Leh; *C* = Símla; *D* = Massúri.

A. 16 123; 15·0; 37 *B.* 19 563; 80·4; 10 = 16,959 ft. *C.* 23 036; 72 5; 84 = 17,019 ft.

D. 23 398; 68·5; 94 = 16,948 ft.

No. 210. PÉNTSE LA PASS, 33° 54′; 76° 26′, in Zánkhar-Dras, leading from Zánkhar to Dras.

Loc. 1) *Level of the lakes Ta Tso and Lang Tso, at the top of the pass* . . . . . 14,697 ft. Schl, Ad.

6, Adie. 1856, June 29.

$11^h\ 20^m$ A.M. *A.* 17·571; 48·9; 32. Símla 23 071; 72 9; 66 = 14,689 ft.

$12^h\ 10^m$ P.M. „ 17·579; 50 4; 30. „ 23 075; 74 7; 62 = 14,705 „

„ 2) *Upper limit of shrubs at the eastern slopes of the Péntse La pass* . . . . . 14,500 ft. Schl., Ad.

Referred by aneroid to the Péntse La pass.

No. 211. SÁLING, 35° 5′; 76° 21′, in Bálti, right bank of the Shayók, nearly opposite Khápalu.

Loc. *Level of the Shayók* . . . . . 7,995 ft. Schl., Ad.

6, Adie. 1856, July 13, $5^h\ 15^m$ A.M. *A.* 22 190; 59 0. Marzigón 21 721; 54 5.

No. 212. KHÁPALU, 35° 4′; 76° 19′, in Bálti, left bank of the Shayók.

Loc. 1) *Mosque at the south side of the village, high above the Shayók* . . . . . 8,285 ft. Schl., Ad

6, Adie. 1856, July 12, 1^h P.M. *A.* 21·815; 90·0, 12. Leh 19 536; 81·7; 12.

„ 2) *Undefined* . . . . . 8,143 ft. Cunning.

No. 213. DÁGONI, 35° 16′; 76° 16′, in Bálti, on the right bank of the Shayók.

Loc. *Mean height of the village* . . . . . 8,313 ft. Schl., Ad.

6, Adie. 1856, Aug. 2, 12^h Noon. *A.* 22 060; 83 7; 21. Símla 23 040, 61 4; 97.

No. 214. VÁKA. 34° 18′; 76° 15′, in Dras, on the road from Leh to Kashmír.

Loc. *Mean height of the village* . . . . . 10,937 ft. Schl., Rob.

8, Pistor. 1856, Oct. 8, 7^h A.M. *A* 20 153 53 2. 0. Símla 23 217 50·2 61

No. 215. SÚRU, 34° 12′; 76° 4′, in Dras, on the confluence of the Súru and Kártse.

Loc. 1) *Level of the confluence* . . . . . 10,434 ft. Schl., Herm.

8, Pistor. 1856, Oct. 11, 8^h A.M.

A. 20·461; 40 3; 15. Símla 23 197; 52 5; 70 = 10,416 ft. Srinagger 24 937, 50 9, 70 10,452 ft. Loc. corr = 10 ft.

Loc. 2) △ *Donáru, confluence of the Shúchu and Kártse* . . . 12,369 ft. Schl., Herm.

8, Pistor. 1856, Oct. 11, 2^h P.M

A. 19 150; 49 5; 8. Símla 23 185; 67 3; 60 = 12,381 ft. Srinagger 24 819, 68 2; 8 = 12,356 ft.

No. 216. LÚDAS, 35° 12′; 76° 11′, in Bálti, on the left side of the Thále valley.

Loc. *Mean height of the village* . . . . . 10,538 ft. Schl., Ad.

6, Adie. 1856, Aug. 3, 6^{h} A.M. *B* = Leh; *C* = Símla.

A. 20 406; 50 9; 63. *B*. 19·804; 57 9; 63 = 10,558 ft. *C*. 23·060; 60·8; 99. + 66 = 10,517 ft.

No. 217. PÁSKYUM, 34° 26′; 76° 8′, in Dras, on the right bank of the Kártse.

Loc. *Level of the Kártse* . . . . . 9,414 ft. Schl., Rob.

8, Pistor. 1856, Oct. 8, 4^{h} P.M. *B* = Símla; *C* = Mássúri; *D* = Srinágger.

A 21 351, 49 6; 36. *B*. 23·233; 63·0; 63 = 9,403 ft. *C*. 23 626; 62 4; 92 = 9,400 ft. *D*. 24·922; 64·4; 33 = 9,438 ft.

No. 218. MÚLBE, 34° 20′; 76° 13′, in Dras. . . . . 10,480 ft. Cunning.

No. 219. TRÉSPON, 34° 22′; 76° 5′, in Dras, on the Súru, S. of Kárgil.

Loc. *Level of the Súru*. . . . . 9,000 ft. Schl., Herm.

8, Pistor. 1856, Oct. 10, 7^{h} A.M. *A*. 21·579; 33·8; 58. Símla 23·245; 48·6; 56. Loc. corr. — 50 ft.

No. 220. KASSURMÍG, 35° 16′; 76° 51′, in Bálti, the highest village of the Thále valley.

Loc. *Mean height of the village* . . . . . 10,815 ft. Schl., Ad.

6, Adie. 1856, Aug. 3, 6^{h} 45^{m} A.M. *A*. 20 197; 52 3; 58. Símla 23·060; 61·2; 99. + 73 ft.

This village is above the limit of fruit-trees (walnuts, apricots, apples, &c.).

No. 221. SÁNKU, 34° 15′; 76° 3′, in Dras, on the Kártse, S. of Kárgil.

Loc. *Mean height of the village* . . . . . 9,817 ft. Schl., Herm.

8, Pistor. 1856, Oct. 10, 12^{h} 30^{m} P.M.

A. 21 014; 52·7; 12. Símla 23 245; 59 4; 60 = 9,812 ft. Mássúri 23 630; 65 1; 57 = 9,822 ft.

No. 222. MER, or KHÁNA PEAK (No. 18. ♆), 34° 0′·8; 76° 2′·4, in Dras, at the eastern boundary of the valley of Kashmír . . . . . 23,264 ft. G. T. S.

Nos. 223-5. SER MER PEAKS, in Dras,
at the eastern boundary of the valley of Kashmír.

No. 223. SER, or NÁNA PEAK No. 9 ♆, 33° 58′·9; 76° 0′·6 . . . 23,407 ft. G. T. S.

No. 224. SER MER PEAK No. 10 ♆, 34° 0′·4; 75° 49′·6. . . . 19,841 ft. G. T. S.

No. 225. SER MER PEAK No. 11 ♆, 34° 6′·3; 75° 42′·3. . . . 19,597 ft. G. T. S.

No. 226. △ SHINGCHÁKBI BIÁNGA, 35°·56′·6; 76° 0′·3 E. in Bálti, on the left side of the lower part of the Mustágh glacier.

Loc. 1) *Pasture ground* . . . . . 13,553 ft. Schl., Ad.

6, Adie. 1856, Aug. 19, 11h A.M.

A. 18·402; 53·1; 57. Símla 23·200; 65·1; 92 = 13,533 ft. Massúri 23·600; 68·9; 78 = 13,573 ft.

Loc. 2) *Upper limit of shrubs* . . . . . 13,650 ft. Schl., Ad.

Referred by aneroid to the pasture ground.

„ 3) *Lower end of the Mustágh glacier* . . . . . 11,576 „ Schl., Ad.

6, Adie. 1856, Aug. 17, 10h A.M.

A. 19·666; 64·8; 52. Leh 19·685; 70·3; 33 = 11,560 ft. Símla 23·087; 63·9; 97 = 11,592 ft.

„ 4) *Upper limit of willows (large trees 30 to 35 ft. in height)* . . . . . 11,626 ft. Schl., Ad.

= 50 ft. above the lower end of the Mustágh glacier.

„ 5) △ *Dumúrtar, level of the confluence of the Tshi and Mustágh glaciers* . . . . . 12,512 „ Schl., Ad.

= 936 ft. above the lower end of the Mustágh glacier; trigonometrically measured.

„ 6) △ *Shúshing, right side of the Mustágh glacier* . . . . 12,542 ft. Schl., Ad.

6, Adie. 1856, Aug. 18, 12h Noon.

A. 18·985; 57·6; 27. Leh 19·658; 74·1; 27. Símla 23·111; 63·3; 95 = 12,566 ft.

„ 7) *Upper limit of "Juniperus excelsa"* . . . . . 13,220 ft. Schl., Ad.

Referred to △ Shúshing.

No. 227. CHORKÓNDA, 35° 31′; 75° 58′, in Bálti, the highest village in Kondós.

Loc. 1) *Mean height of the village* . . . . . 11,136 ft. Schl., Ad.

6, Adie. 1856, July 21, 9h A.M.

A. 19·992; 63·7; 34. Símla 23·083; 64·8; 97 = 11,111 ft. Massúri 23·516; 62·8; 97 = 11,161 ft.

Neither walnuts, apricots, apples, nor any other fruit-trees grow here.

Loc. 2) *Hot spring, near Chorkónda* . . . . . 11,594 ft. Schl., Ad.

6, Adie. 1856, July 21, 6h P.M. *A.* 19·625; 60·8; 19 Massúri 23·130; 68·0; 84

No. 228. △ DONDÓNG, 35° 33′·3; 75° 56′·0 E, in Bálti, on the left side of the Chorkónda glacier.

Loc. 1) *Encamping ground* . . . . . 13,793 ft. Schl., Ad.

6, Adie. 1856, July 21, 8h A.M.

A. 18·052; 41·5; 40. Leh 19·598; 63·9; 40 13,792 ft. Símla 23·052; 63·5; 92 = 13,793 ft.

Loc. 2) *Upper limit of shrubs* . . . . . 13,610 ft. Schl., Ad.

— 183 ft. below the encamping ground; by aneroid.

Loc. 3) *Highest camp on the right side of the Chorkónda glacier* . . . . . 16,905 ft. Schl., Ad.

6, Adie. 1856, July 29, $5^h\ 40^m$ P.M. *B* = Leh; *C* = Simla; *D* = Mässúri.
A 16 177; 13 2; 42. *B*. 19·670; 69·6; 28 = 16,950 ft. *C*. 23 091; 66·9; 95 = 16,900 ft.
D. 23·446; 66·9; 93 = 16,864 ft.

No. 229. Áskoli, Lower, 35° 41′·3; 75° 56′·0 E, in Bálti, one of the highest villages in the Upper Braháldo, or Kóngma Braháldo valley.

Loc. 1) *Small fort* . . . . . 9,710 ft. Schl., Ad.

6, Adie. 1856, Aug. 15, 7^h A.M. *A*. 21 052; 52·0; 47. Leh 19 720; 60·1; 47. Loc. corr. — 12 ft.

Loc. 2) *Source of the Bépho, and lower end of the Bépho glacier* . . . . . 9,876 ft. Schl., Ad.

6, Adie. 1856, Aug. 15, $9^h\ 30^m$ A.M.
A. 20 953, 67 8; 8. Simla 23 146; 61·9; 99 = 9,872 ft. Massúri 23·539; 61 9; 97 = 9,880 ft.

The thickness of the Bépho glacier at its lower end was measured and found to be 795 ft. There are two Áskoli's in the Braháldo valley, the lower and the upper. Schl., Ad.

No. 230. Súru, or Hevánga La Pass, 33° 59′; 75° 55′, in Dras, leading from Súru to Vardván.

Loc. 1) *Top of the pass* . . . . . 15,481 ft. Schl., Herm.

8, Pistor. 1856, Oct. 12, $11^h\ 45^m$ A.M. *A*. 16·929, 24·4; 38. Simla 23·150; 60·6; 62.

„ 2) *Upper limit of the snow-line* . . . . . 15,600 ft. Schl., Herm.
= 119 ft. above the Súru pass.

„ 3) △ *Tsríngma, northern foot of the Súru pass* . . . . . 13,230 ft. Schl., Herm.

8, Pistor. 1856, Oct. 12, $7^h\ 10^m$ A.M.
A. 18·327; 21·9; 63. Simla 23·151; 51 1; 80 — 13,268 ft. Srmágger 24 882; 12 1; 57 = 13,192 ft.

Loc. 4) △ *Mururutsé, southern foot of the Súru pass* . . . . 12,738 ft. Schl., Herm.

8, Pistor. 1856, Oct. 12, $4^h\ 20^m$ P.M. *A*. 18 752; 42·1, 2. Srinágger 24 689; 68 7; 10.

„ 5) *Lower end of the glacier at the southern foot of the Súru pass* . . . . . 12,760 ft. Schl., Herm.
Directly measured.

„ 6) *Upper limit of shrubs* . . . . . 12,890 „ Schl., Herm.
= 152 ft. above △Mururutsé; trigonometrically measured.

No. 231. Thále La Pass, 35° 29′; 75° 53′, in Bálti, E. of Shígar.

Loc. 1) *Top of the pass* . . . . . 15,832 ft. Schl., Ad.

6, Adie. 1856, Aug. 4, 9^h A.M. *B* = Simla; *C* = Massúri.
A. 16 827, 42 6, 88. *B*. 23 119, 62 2, 99 = 15,815 ft. *C*. 23 532; 63 3; 94 = 15,849 ft.

Loc. 2) *Snow limit on the peaks near the pass* . . . . . 16,100 ft. Schl., Ad.

When Adolphe crossed the pass, Aug. 4, it was already covered with snow.

Loc. 3) *Eastern foot of the Thále La pass* . . . . . 15,381 ft. Schl., Ad.

6, Adie. 1856, Aug. 4, 8h A.M. *A.* 17·076; 41·2. Simla 23 111; 62 1; 99.

„ 4) *Upper limit of willows on the western slopes of the Thále La pass* . . . . . 14,710 ft. Schl., Ad.

= 1,122 ft. below the top of the Thále La pass; by aneroid.

No. 232. TÁSKYAM, 34° 28′; 75° 51′, in Dras, left bank of the Dras.

Loc. *Level of the Dras* . . . . . 9,161 ft. Schl., Rob.

7, Pistor. 1856, Oct. 12, 7h A.M.

A. 21·355; 28 8; 68. Símla 23·150; 50 2; 82 — 9,194 ft. Srinágger 21·855; 39 9; 82 — 9,133 ft. Loc. corr. — 20 ft.

No. 233. △ CHUTRÓN, 35° 51′; 75° 50′, in Bálti, the name of hot springs.

Loc. 1) *Lower springs* . . . . . 9,028 ft. Schl., Ad.

6, Adie. 1856, Aug. 13, 10h A.M. *B* = Leh; *C* = Símla.

A. 21·587; 68 4; 14. *B.* 19·784; 72·3; 16 — 9,046 ft. *C.* 23·119; 66 0; 97 — 9,009 ft.

„ 2) *Upper springs* . . . . . 9,970 ft. Schl., Ad.

= 942 ft. above the lower springs; by aneroid.

„ 3) *Upper limit of fruit-trees (apricots, wallnuts, apples)* 9,520 ft. Schl., Ad.

— 450 ft. below the upper springs; by aneroid.

No. 234. SKÓRA LA PASS, 35° 37′; 75° 49′, in Balti, leading from Brahâldo to Shígar.

Loc. 1) *Top of the pass* . . . . . 16,556 ft. Schl., Ad.

6, Adie. 1856, Aug. 30, 4h 45m P.M. *B* = Leh; *C* = Símla.

A. 16 324; 37 6; 40. *B.* 19·590; 62 1; 71 — 16,518 ft. *C.* 23 110, 61·4, 96 = 16,593 ft.

„ 2) △ *Cheritór, northern foot of the Skóra La pass* . . . 14,119 ft. Schl., Ad.

6, Adie. 1856, Aug. 30, 8h A.M. *B* = Leh; *C* = Símla.

A. 17·909; 41·7; 60. *B.* 19 698; 55 8; 70 = 14,127 ft. *C.* 23 146; 61 3; 98 = 14,111 ft.

„ 3) *Upper limit of "Juniperus excelsa"* . . . . . 14,350 ft. Schl., Ad.

— 231 ft. above △ Cheritór; by aneroid.

„ 4) *Lower end of the Ste Ste glacier* . . . . . 14,027 „ Schl., Ad.

= 92 ft. below △ Cheritór; by aneroid.

„ 5) △ *Dreh Bákho, southern foot of the Skóra La pass* 12,543 „ Schl., Ad.

6, Adie. 1856, Sept. 1, 6h A.M. *A.* 18·989; 46 2; 87 Leh 19 709, 19·5; 80.

No. 235. Sar Tsínguni La Pass, 35° 49′; 75° 44′, in Bálti, on the way to Gámba Braháldo . . . . . 9,357 ft. Schl., Ad.

6, Adic. 1856, Aug. 12, 8h A.M. *B* = Leh; *C* = Símla.
A. 21 280· 53·2; 19. *B*. 19·674; 69 8; 19 = 9,334 ft. *C*. 23·131; 62·8; 99 = 9,380 ft.

No. 236. Dras Peak (x ☥), 34° 17′·4; 75° 46′·6, in Dras, about 8 miles S. of Dras, a frontier station towards Kashmír . . . . . 19,377 ft. G. T. S.

The easternmost peak visible in the Kánji panorama (Tibetan part). Schl., Ad.

No. 237. Shígar, 35° 28′·6; 75° 45′·5 ⚐, in Bálti, the principal place of the Shígar valley, on the left bank of the Shígar.

Loc. *Large garden* . . . . . 7,537 ft. Schl., Ad.

6, Adic. 1856, Aug. 5, 9h 10m A.M.
A. 22 776; 72 5; 46. Símla 23·150; 61 7; 98 = 7,520 ft. Mássúri 23·564; 62·4; 95 = 7,554 ft.

No. 238. Skárdo, 35° 20′·2; 75° 44′·0 ⚐, in Bálti, the capital of this province, on the left bank of the Indus.

Loc. *Level of the Indus at the rock "Méndok Kàr"* . . . . . 7,255 ft. Schl., Ad.

6, Adic. 1856, Sept. 4, 9h 30m A.M. *B* = Símla; *C* = Mássúri.
A. 22 981; 70·7; 68. *B*. 23 146; 62 6; 97 = 7,259 ft. *C*. 23 524; 64·4; 98 = 7,251 ft.

„ 2) *Trigonometrical point near Skárdo* . . . . . 7,701 ft. G. T. S.

„ 3) *Undefined* . . . . . 7,157 ft. Cunning.

„ *ditto* . . . . . 7,200 „ Thoms.

No. 239. Dras, 34° 28′·0; 75° 43′·1 ⚐, in Dras, left bank of the Dras, on the road from Ladák to Kashmír.

Loc. 1) *Fort* . . . . . 9,951 ft. Schl., Rob

7, Pistor. 1856, Oct. 13, 11h A.M. *B* Símla; *C* Massuri. *D* = Srinágger.
A. 20 891; 48 2; 11. *B*. 23 197; 58 3, 63 = 9,943 ft. *C* 23 591; 65 1; 62 = 9,958 ft.
D. 24·871 59 9; 36 = 9,943 ft

„ 2) *Undefined* . . . . . 10,253 ft. Cunning.

No. 240. △ Tik Tik Chúmik, 35° 17′; 75° 40′, in Bálti, in a small lateral valley leading to the Búrze La pass.

Loc. *Encamping ground near a spring* . . . . . 8,754 ft. Schl., Ad.

6, Adic. 1856, Sept. 5, 2h 30m P.M. *B* = Leh; *C* = Símla; *D* = Mássúri
A. 21 807; 68 0; 60 *B* 19 720; 61 9; 67. + 57 8,743 ft. *C*. 23 189, 68 4; 84 — 35 = 8,779 ft.
D. 23 548; 68 4; 91. — 43 = 8,739 ft.

No. 241. GASHUMÁL, 35° 34′; 75° 39′, in Bálti, on the right side of the Shígar valley, N.W. of Shígar.

Loc. *Level of the Shígar* . . . . . 7,561 ft. Schl., Ad.

6, Adie. 1856, Aug. 6, 7h P.M. *A.* 22·590; 67·1; 10. Leh 19·670; 73·4; 16 = 7,585 ft.
" " " 7, 6 A.M. " 22·721; 52 7; 15. Símla 23·119; 58 3; 97 = 7,537 "

No. 242. △ CHU BIÁNGA, 35° 46′; 75° 36′, in Bálti, between Dássomit and Gámba Braháldo.

Loc. *Level of the Braháldo* . . . . . 8,063 ft. Schl., Ad.

6, Adie. 1856, Aug. 12, 6h A.M. *A.* 22·331; 49·8; 35. Leh 19 701; 62·4; 35.

No. 243. MATÁÏ, 34° 25′; 75° 35′, in Dras, on the Dras.

Loc. *Mean height of the village* . . . . . 10,400 ft. Schl., Rob.

7, Pistor. 1856, Oct. 14, 7h A.M. *A.* 20·501; 29·8; 43. Símla 23 217; 54·1; 72.

No. 244. △ CHO CHO CHÚMIK, 35° 14′; 75° 34′, in Bálti, in the valley leading to the Búrze La pass.

Loc. *Encamping ground near a spring* . . . . . 12,738 ft. Schl., Ad

6, Adie. 1856, Sept. 5, 6h 30m P.M. *B* = Leh; *C* = Mássúri.
A. 18·854; 47·7; 40. *B.* 19·681; 58·6; 44 = 12,712 ft. *C.* 23·539; 66·6; 91 = 12,761 ft.

No. 245. BÚRZE LA PASS, 35° 10′; 75° 32′, in Bálti-Dras, leading from Bálti to Dras.

Loc. *Top of the pass* . . . . . 15,766 ft. Schl., Ad.

6, Adie. 1856, Sept. 6, 10h A.M. *B* = Leh; *C* = Símla.
A. 16·879; 40·1; 44. *B.* 19·720; 56·7; 69 = 15,771 ft. *C.* 23·154; 64·6; 96 = 15,761 ft

Nos. 246-8. HÍMBAB PEAKS (HÉMBAPS), in Dras.

No. 246. HÍMBAB PEAK *d* ✝, 34° 22′·3; 75° 26′·1 . . . 18,052 ft. G. T. S

No. 247. HÍMBAB PEAK *i* ✝, 34° 30′·8; 75° 35′·1 . . . 17,643 ft. G. T. S.

No. 248. HÍMBAB PEAK *j* ✝, 34° 31′·6; 75° 41′·1 . . . 17,369 ft. G. T. S.

The Hímbab peak *d* is visible as the easternmost object in the Tibetan part of the Nunevára panorama; the Hímbab peak *j* in the Kánji panorama. Schl., Ad

No. 249. Chutrón, 35° 44′·6; 75° 25′·7 E, in Bálti, district of Básha. right side of the Shigar valley.

Loc. *Mean height of the village* . . . . . 8,060 ft. Schl., Ad.

6, Adie. 1856, Aug. 9, 7h P.M. *A.* 22·229; 65 3; 49. Simla 23·082; 63·0; 98.

No. 250. Alimáli Mat, 35° 7′; 75° 23′, in Dras, on the plateau of Deosái.

Loc. 1) *Encamping ground* . . . . . 13,421 ft. Schl., Ad.

6, Adie. 1856, Sept. 7, 7h A.M. *A.* 18 351; 36 5; 65. Leh 19 670; 59·2; 60.

„ 2) *Mean height of the Deosái plateau* . . . . . 14,100 ft. Schl., Ad.

No. 251. Gyálzering Mat, 35° 1′; 75° 14′, in Dras, in the upper part of the Daskérim valley.

Loc. 1) *Level of the river* . . . . . 13,175 ft. Schl., Ad.

6, Adie. 1856, Sept. 8, 7h A.M. *A.* 18 579; 39 0; 30. Leh 19 733; 60·8; 25.

„ 2) *Upper limit of trees* . . . . . 11,990 ft. Schl., Ad.

Referred by aneroid to △ Gyálzering.

„ 3) *Upper limit of shrubs* . . . . . 13,410 ft. Schl, Ad.

Referred by aneroid to △ Gyálzering Mat.

No. 252. Róngdo, 35° 35′; 75° 11′, in Bálti, a fort on the left bank of the Indus, N.W. of Skárdo . . . . . 5,978 ft. Cunning.

No. 253. Kinnibári Peak, 35° 11′; 75° 5′, in Hasóra, N.E. of Naugáum.

Loc. 1) *Top of the peak* . . . . . 15,718 ft. Schl., Ad.

6, Adie. 1856, Sept. 27, 5h P.M. *A.* 16·933; 37 0; 0. Simla 23 233; 64·0; 88.

„ 2) *Snow-limit on the northern slopes of the Kinnibári peak* . . . . . 14,800 ft. Schl., Ad.

„ 3) *Snow-limit at the southern slopes of the peaks near Kinnibári* . . . . . 16,400 „ Schl., Ad.

The difference of the snow-limit between the southern and northern exposition is remarkably great. Schl., Ad.

Loc. 1) *Nilo Sar, a small lake on the foot of the Kinnibári peak* . . . . . 14,691 ft. Schl., Ad.

= 1,027 ft. below the Kinnibári peak; by aneroid.

„ 5) *Upper limit of shrubs* . . . . . 14,120 „ Schl., Ad.

Referred by aneroid to Nilo Sar.

Loc. 6) △*Bulzáu Áthel, on the Kinnibári plateau* . . . . . 13,147 ft. Schl., Ad.

6, Adie. 1856, Sept. 29, 2h P.M. *B* = Leh; *C* = Símla.
A. 18·595; 42·1; 6. *B.* 19·713; 57 2; 3 = 13,122 ft. *C.* 23 253; 67 8; 81. — 62 = 13,172 ft.

„ 7) △*Shall Harái, on the slopes of the Kinnibári peak*. 12,160 ft. Schl., Ad.
= 987 ft. below Bulzáu Áthel; by aneroid.

„ 8) *Upper limit of trees on the slopes of the Kinnibári peak towards Naugáum* . . . . . 11,980 ft. Schl., Ad
Referred by aneroid to △Shall Harái.

No. 254. DÁS, 35° 2′; 75° 4′, in Hasóra, the highest village in the Daskérim valley.

Loc. *Mean height of the village* . . . . . 10,794 ft. Schl., Ad.

6, Adie. 1856, Sept. 9, 7h A.M. *A.* 20 288; 41·2; 18. Leh 19 715; 53 6; 20

No. 255. KUSHINÁT, 35° 3′: 75° 1′, in Hasóra, on the right bank of the Daskérim.

Loc. 1) *Mean height of the village*. . . . . 8,818 ft. Schl., Ad.

6, Adie. 1856, Sept. 9, 4h P.M. *A.* 21·788; 68·2; 16. Símla 23·178; 69 1; 75.

„ 2) *Upper limit of fruit-trees (wallnuts and apples)* . . . 8,920 ft. Schl., Ad
Referred by aneroid to Kushinát.

No. 256. GÓLTERE, or NAUGÁUM, 35° 8′; 75° 1′, in Hasóra, S. of Astór, or Hasóra, in the Hasóra valley.

Loc. 1) *Cultivated terraces at the village* . . . . . 9,114 ft. Schl, Ad.

6, Adie. 1856, Sept. 10. 6h 15m A.M. *A.* 21 473; 15 9; 39. Símla 23·116; 56·1; 96

„ 2) *Góltere, or Naugáum pass* . . . . . 9,780 ft. Schl., Ad.
= 666 ft. above the terrace at Góltere; by aneroid.

No. 257. DORIKÓN PASS, 34° 43′; 74° 58′, in Hasóra, leading from Hasóra to Gures.

Loc. 1) *Top of the pass*. . . . . 13,788 ft. Schl., Ad

6, Adie. 1856, Oct. 1, 3h P.M. *B* Símla; *C* = Massúri.
A. 18·158; 37·0; 39. *B.* 23·281; 61 3, 79. — 68 13,782 ft. *C.* 23 671; 64 8; 87. — 73 = 13,793 ft.

Loc. 2) *Upper limit of shrubs on the southern slopes of the Dorikón pass* . . . . . 13,480 ft. Schl., Ad.
Referred by aneroid to the Dorikón pass.

Loc. 3) △*Páshu Bái, on the southern foot of the Dorikón pass* . . . . . 8,810 ft. Schl., Ad.

6, Adie. 1856, Oct. 2, 12h 45m P.M. *A.* 21 871; 61 9, 30. Símla 23·280; 62·2; 70.

No. 258. Hasóra, or Astór, or Tsúnger, 35° 12′; 74° 53′, in Hasóra, a fort in the valley of Astór, or Hasóra.

Loc. 1) *Level of the Hasóra* . . . . . 7,198 ft. Schl., Ad.

6, Adic. 1856, Sept. 24, 7h 15m A.M. *A.* 23·162; 48·0; 64. Leh 19·760; 48·6; 78.

„ 2) *Open place above the fort* . . . . . 7,862 ft. Schl., Ad.

— 664 ft. above the level of the river; by aneroid.

No. 259. Gánu, 35° 12′; 74° 50′, in Hasóra, on the left side of the Hasóra valley.

Loc. *Mean height of the village* . . . . . 7,661 ft. Schl., Ad.

6, Adic. 1856, Sept. 24, 6h 15m A.M. *A.* 22·706; 44·1; 73. Símla 23·213; 56·1; 91.

No. 260. Gúe, or Nahákе Pass, 35° 14′; 74° 45′, in Hasóra, between Gúe and Naháke. E. of the Diámer peak.

Loc. *Top of the pass* . . . . . 12,592 ft. Schl., Ad.

6, Adic. 1856, Sept. 15, 8h 45m A.M. *B* = Símla; *C* = Mässúri. Loc. corr. — 94 ft.
A. 19 012; 50·4; 35. *B.* 23·276; 62·8; 95 = 12,585 ft. *C.* 23·682; 62·8; 97 = 12,599 ft.

No. 261. Úlli Pass, 34° 34′; 74° 44′, in Hasóra, on the way from Dáver to the Nunevára mountain.

Loc. 1) *Top of the pass* . . . . . 12,609 ft. Schl., Ad.

6, Adic. 1856, Oct. 5, 4h P.M. *A.* 18 981; 43·2; 24. Símla 23·205; 66 2; 64.

The depression of the Úlli pass is well visible in the Nunevára panorama (Tibetan part).

Loc. 2) *Upper limit of shrubs* . . . . . 12,510 ft. Schl., Ad.

Referred by aneroid to the Úlli pass.

„ 3) *Úlli plain at the foot of the Úlli pass* . . . . . 12,250 ft. Schl., Ad.

Referred to the Úlli pass.

No. 262. Táshing, 35° 15′·7; 74° 40′·7 ⚐, in Hasóra, a village with a fort in the lower parts of the Astór, or Hasóra valley.

Loc. *Lower houses of the village* . . . . . 9,692 ft. Schl., Ad.

6, Adic. 1856, Sept. 23, 11h A.M. *B* = Leh; *C* = Símla; *D* = Mässúri.
A. 21 162; 54 7; 82. *B.* 19·812; 47·5; 82 = 9,722 ft. *C.* 23·213; 63 0; 86 = 9,641 ft. *D.* 23·678; 59·2; 88 = 9,715 ft.

No. 263. Hant Mountain, 34° 36′·8; 74° 35′·9 ⚷, in Hasóra, near the left bank of the Kishengánga, on the road from Bándipur to Gurés . . . . . 13,493 ft. G. T. S.

Visible in the central parts of the Nunevára panorama (Tibetan part). Schl., Ad.

In conclusion, we venture—though no direct observations, for the moment, are at our disposal—to give hypsometrical values for Élchi, Yárkand, and Káshgar, the three principal towns in Turkistán. Major A. Cunningham, who has collected much varied information for the purpose,[1] remains, we believe, the only traveller who has computed the height of these places.

He adopts for Élchi 3,500 ft., Yárkand 4,000 ft., and Káshgar 4,500 ft.

Our own estimates, however, are somewhat different: for reasons hereafter stated, we adopt:[2]

No. 264. ÉLCHI, 36° 50′; 78° 20′ . . . . . 5,500 ft.
No. 265. YÁRKAND, 38° 10′; 74° 0′ . . . . . 4,200 ft.
No. 266. KÁSHGAR, 39° 15′; 71° 50′ . . . . . 3,500 ft.

A comparison with Cunningham's values shows, that we differ by 2,000 ft. for Élchi, 200 ft. for Yárkand, and 1,000 for Káshgar.

Though not actually penetrating as far as the town of Élchi ourselves, yet we (Hermann and Robert) were sufficiently near it, to be able to place some reliance upon the information, that Élchi is just "at the foot of the mountains", and, therefore, in all probability the highest of the three towns. Our informants, moreover, were unanimous in one respect more especially, viz., that the amount of snow-fall at Élchi is considerably greater than that either of Káshgar or Yárkand, and that the snow remains upon the ground from 10 to 14 days before it finally disappears. It is true, that the proportionately greater snow-fall for Élchi may to a certain extent be accounted for by the closer proximity of the place to the mountains; yet the simple fact of its remaining so long upon the ground would nevertheless appear proof conclusive of considerable elevation. Elchi was also uniformly represented to have the coldest, as Káshgar the hottest temperature of the three towns throughout the year. Snow, indeed, is said to fall at Káshgar, but never to remain longer than a few hours; at the same time, there were many persons concurring in the statement, that they remembered to have seen snow lying in Yárkand for three or four days together. From all these reasons we assign to Káshgar a height of no more than 3,500 ft.

The vegetable products grown in each of these towns, about which we made careful and frequent inquiries, did not, as we had at first expected, furnish us with

[1] See "Ladák", 1854, p. 27.

[2] A discussion on the latitude and longitude of these places is contained in Vol. I., p. 369.

any additional basis for forming a correct idea upon the height of these places. In the first instance, it must be taken into consideration, that the difference of relative height between the three towns amounts only to 2,000 ft., and that the highest is the southernmost. Besides each of them containing a numerous population, it is not unreasonable to suppose, that many amongst them are able successfully to cultivate fruits and grains in their gardens, which, without artificial care and attention, would not have any existence at all in such heights. In order to arrive at a correct idea upon the subject, it would be necessary to ascertain the relative amount grown of the fruits, or vegetables, which we know to be restricted between certain heights. To elucidate this, however, was a matter of utter impossibility from the fact of our informants being merchants, and not agriculturists proper.

Two statements contained in Cunningham's "Ladák," appear to be contradicted by the representations made to us. *Rice* and *cotton*, we were informed, grow most abundantly in Káshgar, as well as *gram*, or *pulse* (Cicer arietinum).

PART V.

I. GENERAL HYPSOMETRICAL TABLEAU OF INDIA AND HIGH ASIA.

II. ALPHABETICAL REGISTER OF THE HEIGHTS DETERMINED.

III. ADDITIONAL REPORTS ON THE LAST JOURNEYS AND DEATH OF OUR BROTHER ADOLPHE.

I. GENERAL HYPSOMETRICAL TABLEAU OF INDIA AND HIGH ASIA.

A. The Different Varieties of Habitation: 1. Towns, villages, and pasture grounds. 2. Extreme heights visited by man, and effect of height. — *B.* Geographical Configurations: 1. Plateaux and lakes. 2. Passes. 3. Peaks. — *C.* Physical Phenomena: 1. Snow-fall, snow-line, and glaciers. 2. Limits of vegetation and animal life.

The materials included in this volume may be considered ample enough to furnish a rough outline of the physical features of these regions in connection with their hypsometry. To render this picture complete, we found it necessary to add mean values for the snow-line, and for some of the limits of vegetation and animal life. We did so, however, with hesitation, knowing that we must postpone the full detail upon which the values are based to the subsequent volumes having special reference to such researches.

The various objects measured have been divided into three principal groups:

A. The Different Varieties of Habitation:

1. Towns, villages, and pasture grounds.
2. Extreme heights visited by man, and effect of height.

B. Geographical Configurations:

1. Plateaux and lakes. 2. Passes. 3. Peaks.

C. Physical Phenomena:

1. Snow-fall, snow-line, and glaciers. 2. Limits of vegetation and animal life.

Within these primary groups, the materials are also subdivided for the different geographical regions, as: *India*, the *Himálaya*, *Western Tibet*, and parts of the

Karakorúm and *Kuenlúen*.[1] We have added, moreover, as an aid to comparison, some analogous data for the *Andes* and the *Alps*, limiting their number, however, as much as possible, in order not to deviate too widely from the immediate object in view.[2] For the Andes, the celebrated "Voyages aux régions equinoctiales" by Humboldt, have long furnished materials which possess to this day the highest value and importance; and in his recent publications,[3] the newest contributions of science have been added with a master's hand.

The physical and geological features of the Alps have been treated by Hermann and Adolphe in two volumes,[4] containing data of physical geography, partly the result of their own observations, and partly collected from the works of preceding observers.

A. THE DIFFERENT VARIETIES OF HABITATION.

1. TOWNS, VILLAGES, AND PASTURE GROUNDS.

India, with its large population,[5] has a great many towns, as well in its mountainous districts, as in the more frequented plains. The majority of elevated towns and villages is to be found in Maissúr, where they are situated in great number at a height of 2,000 or 3,000 ft. (Bangalúr 2,949 ft., Seringapatám 2,558 ft.). The Dékhan follows next in order of elevation (Satára 2,252 ft., Aurangabád 1,855 ft.). In Málva, Berár, and Bahár, none of the larger places reach the height of 2,400 ft. (Seúni 2,133 ft., Ságar 1,880 ft.); while the principal stations of the Pănjáb are lower still (Raulpíndi 1,737 ft., Peshaúr 1,280 ft.).

The extreme elevations attained by the various mountain-systems are not so excessive, that habitation in these tropical regions can be said to be limited by the modifications of climate as occasioned by height. On the contrary, the prominent peaks

[1] In order to avoid repetition, and to present the materials in a condensed, and, therefore, comparable form, the names of the observers, the latitude and longitude, and other topographical details are omitted here; they may be easily found by reference to the "Alphabetical Register of Heights," pp. 506–25.

[2] For a general treatment of the subject, we may refer to the well known physical Atlas by A. K. Johnston.

[3] "Ansichten der Natur," 1849, 3rd edition, and "Kleinere Schriften," 1853.

[4] "Untersuchungen über die physikalische Geographie und die Geologie der Alpen." Vol. I., 1850; Vol. II., 1854.

[5] A very accurate and careful map, showing the density of population in various districts, is contained in Dr. A. Petermann's "Geographische Mittheilungen," 1857.

and high plateaux, from which rivers take their origin, such as the Samanála, or Sripáda (Adam's peak) in Ceylon (7,385 ft.), the Parisnáth in Bahár (4,469 ft.), the plateau of Amarkántak in Málva (3,590 ft.), have for a long time been crowned with temples and shrines, richly appointed with numerous establishments of priests, to which multitudes of fakirs and pilgrims are annually induced to resort. The highest point in India, the Dodabétta peak (8,640 ft.), is permanently inhabited by a few natives who have been enlisted in the service of science, and are regularly charged with making meteorological observations.[1]

For Europeans, the decrease of temperature with elevation offers conditions for the establishment of *sanitariums*, one of the most efficient means for preserving health in the midst of tropical climes. The highest settlements of this kind are those of Utakamánd in the Nílgiris (7,490 ft.), and Nurélia in Ceylon (6,218 ft.).

The *Himálaya* rises, in general, so abruptly above the plains, and the latter, particularly in the western regions, are in themselves of such an elevation, that, even in the lower parts of the valleys, there are but few, if any, points of less altitude than 1,000 ft. above the level of the sea. Two causes, more especially, have tended to displace the order of population in these districts, the lower parts being almost exclusively deserted in favour of the lands lying immediately above. In the first instance, the prevailing steepness of the country hereabouts, which is considerably increased by the erosion of the rivers, precludes the successful cultivation of the soil; and, again, from the swampy and malarious character of the large hill-side forests (tarái) skirting the extremities of the valleys, the neighbourhood is rendered as uninhabitable to the tribes of the Central Himálaya as to the highly susceptible and less seasoned visitor from European climes. Consequently, in the inferior stratum of heights, ranging between 2,000 and 3,000 ft., the number of places inhabited by the natives is comparatively insignificant; while population reaches its maximum in the rich belt of life rising from 3,000 to 8,000 ft., the traces of man and his dwelling-place beginning rapidly to disappear at 11,000 ft. and even before.

The *highest limits of habitation*, however, very often present themselves under a form which almost excludes the possibility of strictly comparing them as dependent upon climate. It is a remarkable fact, that in some provinces of the Himálaya,

[1] See T. G. Taylor's "Meteorological observations made on Dodabétta." Madras, 1848.

especially in Nepál, Kămáon, and Gărhvál, many villages are deserted in winter, though as far as regards their elevation, and the solid construction of the houses, they might very well be inhabited throughout the year. The natives, however, prefer removing to villages less elevated, where they spend the colder months.

The Alps of Europe also present instances of this kind in Findelen (7,192 ft.), Breuil (6,594 ft.),[1] and many other summer villages of greater or less elevation on the French side of the Alps. In the Himálaya west of Gărhvál such modifications do not occur; at least, we are not aware of the existence of villages in Símla, Kúlu, Kishtvár, &c., where the inhabitants follow the nomadic example furnished in other parts of the hill-country.

Châlets (*Alpenhütten*) are as little used in the Himálaya, as *tents* in the Alps. The pasture grounds, "Kárik", for sheep and bovine cattle, are, for the most part, in low elevations, and at no great distance from the villages. In the frontier country bordering Tíbet, herds of sheep and goats are used for the transport of merchandize. They are driven over the passes to Tíbet, laden with grain (a full grown sheep carrying about seven pounds), and return at the end of the summer with salt and borax.

The *sanitariums* in the Himálaya (Símla 7,156 ft., Darjíling 6,905 ft., Măssúri 6,849 ft., &c.) are at present confined to the outer ranges, at a distance of 40 or 50 miles from the foot of the mountains. Though the interior of the Himálaya would afford, perhaps, many spots more desirable in point of coolness and dryness, the want of roads has hitherto rendered all approach exceedingly difficult, and to an invalid even dangerous. But we may hope at a future time to see sanitariums founded in more central situations. A beginning has already been made with Chíni, a most salubrious place in Kănáur (9,096 ft.), which has been connected with Símla by a road executed by order of Lord Dalhousie. Also Srinágger,[2] the capital of the valley of Kashmír (5,146 ft.), has of late become easy of access from several parts of the Pănjáb.[3]

[1] Hermann and Adolphe: "Physikalische Geographie der Alpen." Vol. II., p. 582.

[2] In the summer of 1861 there were in Kashmír about three hundred visitors, including ladies and children. *Delhi Gazette.*

[3] Quite recently, Captain Urmston has been deputed to form a committee and proceed to the north side of the great Chámba range, to ascertain if a sanitarium out of range of the periodical rains can be formed there. *Allen's Indian Mail, Nov. 21, 1861.*

Western Tibet is a country of such general elevation, that, only in the province of Bálti, villages are to be found below a height of 6,000 ft. As a whole, Tibet is very thinly populated; the greater portion of the inhabitants living at heights varying between 9,000 and 11,000 ft. In some of its provinces, more especially in Gnári Khórsum, and, if we may judge from the travels of Huc and Gabet, in the eastern parts of Tíbet also, remains of former habitations may often be observed in places now nearly deserted. Their appearance would give rise to the belief, that the country formerly had a more numerous population than it can show at the present day. One of the principal causes of this marked change may be looked for in the long continued pressure of the Chinese upon these countries.

Some of the chief towns of Tíbet have been built at considerable elevation; Leh, the capital of Ladák, and one of the most important commercial places of Western Tíbet, lies 11,527 ft. above the level of the sea. We find villages, hamlets, and other dwelling places permanently inhabited, which may be ranked among the highest abodes of man, not only in High Asia, but even in the world at large. Indeed, such are the extraordinary elevations at which they have been discovered, that the assertions of Moorcroft — in 1812 one of the first explorers of the western parts of Tíbet[1] — were at first received with a certain degree of incredulity. For ourselves, however, we have been enabled, by the labours of our predecessors and the results of our own travels, to select the villages of extreme height from a sufficiently large number of determinations.

The *highest permanently inhabited places* are Buddhist monasteries, the most elevated being probably that of Hánle, in Ladák (15,117 ft.), where about 20 lamas reside. Round the lakes of Mansaráur and Rákus, in Gnári Khórsum, there are also some monasteries, mentioned by Moorcroft and the Stracheys, which we should suppose to be nearly as high as Hánle. It may be recollected as a coincidence, that in Europe, the highest permanently inhabited place is also a monastery, erected on the St. Bernard at a height of 8,114 ft.

Tíbet, like the Himálaya, has its *summer villages*. One of them, Gártok, on the Indus, at a height of 15,090 ft., has a special interest attaching to it from the commercial importance of the place. Every year, in August, a large fair is held there, and occasionally visited by several thousands of natives from almost every part of

[1] See "Asiatic Researches," Vol. XII., pp. 375 et seq.

the Himálaya and Central Asia. The houses in Gártok being few in number, the people have to encamp in the black or coloured cloth-tents which they bring with them, enlivening the usual quiet aspect of the place with the appearance of a second and larger town under canvas. This is certainly the greatest height at which man is known to congregate for mercantile purposes.

Some of the other Tibetan summer villages, as Nórbu (15,946 ft.) and Púga (15,264 ft.), are built on sites, near which salt and borax, important export articles for Tibet, are found, and serve only as occasional sheltering places to shepherds.

Tibet has long been famous throughout Asia, and even in Europe, for its numerous herds of sheep and the superior quality of the wool which they provide; with the rearing of these herds many of its inhabitants are exclusively occupied. In summer, the flocks are driven to *pasture grounds*, some of which reach an elevation (15,000 to 16,349 ft.) beyond which the Tibetan shepherds, who sometimes remain upon the mountains from June to September, cannot be supposed to make any permanent residence. Though many cloudless days generally succeed each other in these lofty regions, thus leaving the power of direct insolation unimpaired, the climate always remains bleak; while the prevailing winds not only aggravate the effects of a low temperature, but also that of a low barometric pressure, thus presenting a remarkable modification of climate, of which we shall give some detail in our considerations upon the influence of height in general.[1] The shepherds with difficulty provide themselves with a sufficient supply of fuel for cooking purposes; sometimes they contrive with much labour and pains to erect rude stone walls, behind which they may take shelter during the night. These walls are usually circular in form, from 4 to 5 feet high and without a roof. If the pasture ground happens to be near a glacier, one of the huge stones from the ancient moraines is not unfrequently used as a part of these constructions. Against strong winds more protection is thus afforded than by the black cloth-tents which the shepherds often carry with them.

In the *Kuenlúen*, even the foot of its southern (Tibetan) slopes is so elevated, that no villages or pasture grounds exist at all; by combining with our own observations a variety of reports received, we obtain for its northern slopes 9,400 ft., as

[1] See p. 483.

the limit of *permanently inhabited villages* (Búshia 9,310 ft.); *summer villages* reach about 10,200 ft., and *pasture grounds* do not occur above 13,000 ft.

In the *Andes*, large and important permanently inhabited places have been built at great heights (Cerro de Pasco 14,098 ft., Potosi 13,665 ft.), and are generally situated on plateaux.

For the *Alps*, we have already had occasion to mention their summer villages.[1] The *highest permanently inhabited* villages are in the valley of Avers in Graubündten, where Juf lies at an elevation of 7,172 ft., and that of Cresta exceeds 6,700 ft. But the roads, leading across the passes, have rendered it necessary to construct houses near the top which are permanently inhabited; the highest of these at present being the well known monastery of St. Bernard (8,114 ft.). As long as the road over the Stelvio was kept up, Santa Maria (8,146 ft.) was also inhabited throughout the year.

The *pasture grounds* in the Alps, which are generally in the neighbourhood of Châlets (Alpenhütten), may be met with at heights of 8,000 ft. and upwards; the Fluhalpe on the Findelen glacier near Monte Rosa (8,468 ft.), and the Torrenthütte in the Anniviers valley (8,412 ft.), being instances of the greatest elevations.

TABLE OF THE PRINCIPAL TOWNS, VILLAGES, AND PASTURE GROUNDS.

I. INDIA.

a. *Highest towns and villages.*

1. Maissúr.		2. Dékhan.		3. Málva, Berár, and Rajvára.	
Name.	Feet.	Name.	Feet.	Name.	Feet.
Chóta Bálapur	3,016	Belgáñ	2,500	Rangárh	2,438
Bangalúr	2,949	Sássur	2,491	Seóni	2,133
Mulvágel	2,819	Satára	2,252	Údepur	2,064
Hoskóta	2,804	Bídar	2,250	Indúr	1,998
		4. Pänjáb.			
Bahádur Khél	1,825	Kohát	1,745	Raulpíndi	1,737

b. *Sanitariums.*

The locality is added in parentheses.

Utakamánd (*Hôtel*)	7,490	Mahabaléshvar (*Plateau*)	4,500	In Ceylon.	
Kunnúr (*Hôtel*)	5,960	Chérra Púnji (*Byng's bángalo*)	4,125	Nurélia (*Plain*)	6,218

[1] See p. 476.

[2] Hermann and Adolphe: "Physicalische Geographie der Alpen." Vol. II., p. 582.

II. HIMÁLAYA.

a. *Sanitariums.*

The locality is added in parentheses.

Name	Feet.	Name.	Feet.	Name.	Feet.
Chíni (*Flagstaff*)	9,096	Márri (*South side*)	6,963	Massúri (*Club*)	6,849
Símla (*Church*)	7,156	Darjíling (*Church*)	6,905	Nainitál (*Lake*)	6,520

b. *Highest permanently inhabited villages.*

1. Bhután, Síkkim, and Nepál.		2. Kámaon and Gárhwál.		3. Símla and Kúlu.	
Yángma Guóla	9,279	Ussílla	8,940	Bambhóra Gárh	9,844
Lámteng	8,883	Tsóbta	8,842	Jánglik	9,257
Bumdangtáng	8,668	Múkba	8,600	Jútvar	8,177
Láchung	8,630	Káthi	7,410	Kót	7,678

4. Lahól and Kánaur.		5. Kishtvár and Kashmír.			
Dárche	11,746	Súkne	9,122	Dáver	7,718
Rarik	11,685	Bára Bánghal	8,535	Kúllan	7,178
Kánu	11,683	Pashmín	8,351	Shápion	6,672

c. *Highest summer villages of Kámaon and Gárhwál.*

They do not occur in the Himálaya west of Gárhwál.

Kidarnath	11,791	Loá	11,540	Nélong	11,350
Goh	11,561	Níti	11,464	Milum	11,265

III. WESTERN TÍBET.

a. *Highest permanently inhabited villages.*

Name	Feet.	Name		Feet
Hanle, a Buddhist monastery	15,117	Múglab,	towns with a considerable number of stone-houses,	13,847
Chúshul, a small village	14,406	Kíbar,		13,607
Panamik, a shepherds' settlement	14,146	Gyá,		13,548
Púling, in Gnári Khórsum	13,953			

b. *Highest summer villages.*

Name.	Feet.	Name	Feet.	Name.	Feet.
Nórbu	15,946	Kórzog	15,349	Gártok	15,099
Chábrang	15,588	Púga	15,264		

c. *Highest pasture grounds.*

They are inhabited only in summer.

Larsa	16,349	Kúngchu	15,781	Ámlung	15,300
Zinchín	16,222	Rúkchin	15,064	Júgta	15,058

IV. KUENLÚEN.

Highest villages	9,100	*Highest summer villages*	10,200	*Highest pasture grounds*	13,000

V. ANDES.

Highest towns and villages.

Authorities: *B* = Burkart;[1] *H* = Humboldt;[1] *P* = Pentland;[2] *W* = Wislizenus.[1]

Name.	Feet.	Name.	Feet.	Name.	Feet.
Cerro de Pasco[3]	14,098 *H*	Turche	10,641 *H*	Zacatecas	8,051 *B*
Potosi	13,665 *H*	Cebolullullo	8,890 *P*	Mexico	7,469 *H*
Cuzco	11,380 *P*				

VI. ALPS.

a. *Highest permanently inhabited places.*

St. Bernard	8,114	Juf	7,172	Cresta	6,715

b. *Highest summer villages.*

Findelen	7,192	Breuil	6,594

c. *Highest pasture grounds.*

Fluhalpe	8,468	Torrenthütte	8,412

2. EXTREME HEIGHTS VISITED BY MAN, AND EFFECT OF HEIGHT.

Temporary habitations, frequented for some months, as we have seen in the table of the highest pasture grounds, sometimes reach a height of nearly 16,500 ft.; the shepherds' tents and the stone-walls of Tibet being most probably the highest of their kind on the globe.

As far as our personal experience goes, we may state, that, for short periods of ten or twelve days, man may considerably exceed this height, not without suffering, but at least with no positive injury to himself. During our explorations of the Ibi Gámin glàciers, August 13 to 23, 1855, we encamped and slept during these ten days, in company with eight men (Bhútias from Mílum and Tibetans), at very unusual heights. During this period our lowest camp was pitched at 16,642 ft.; our highest at 19,326 ft.—the greatest height at which we ever passed a night;[4] another was at 19,094 ft., two camps exceeded 18,300 ft., and the remainder ranged between 18,000

[1] "Ansichten der Natur," Vol. I., p. 349.

[2] Pentland's Map: "La Laguna de Titicaca and the valleys of Yucay, Collao, and Desaguadero." London, 1848.

[3] "Ansichten der Natur," Vol. I., p. 137. Santa Barbara, a mine with houses, near Huancavelica, is 14,508 ft. high.

[4] By way of comparison with European proportions, we may mention, that this is very nearly twice as high as the Zugspitze (9,692 ft.), the highest peak in the Bavarian Alps.

and 17,000 ft.[1] Apart from the extreme elevation and consequent cold, the bodily exertions imposed upon us during our stay proved a great tax upon our powers. Once we crossed a pass of 20,459 ft., and three days earlier, Aug. 19, 1855, we had ascended the flanks of Íbi Gámin to a height of 22,259 ft.[2] This, as far as we know, is the greatest height yet reached on any mountain, though below that to which man has risen in balloons.[3]

On the Sássar peak we attained (Aug. 3, 1856) an elevation of 20,120 ft.[4] As early as 1818, however, the brothers Alexander and James Gerard ascended (Oct. 18) a peak in Spíti 19,411 ft. high, not far from the Porgyál, or Tazhigáng.[5]

From a memoir just published by Captain T. G. Montgomerie, whose important labours in connection with the operations of the G. T. Survey we have had repeated opportunities of acknowledging, we learn that a *station* of 19,979 ft. has been reached twice by Mr. W. H. Johnson, and another 19,958 ft. in height by Mr. W. G. Beverley. A *trigonometrical mark* has also been erected on a point 21,480 ft. above the level of the sea, "but unfortunately there was not sufficient space to put a theodolite on it."

In the *Andes* Humboldt ascended the flanks of Chimborazo (June 23, 1802)

[1] In the *Alps*, Hermann and Adolphe once remained in the Vincenthütte, on the southern slopes of Monte Rosa, for 14 days, at a height of 10,374 ft. (see "Phys. Geogr. d. Alpen," Vol. II., p. 83). On another occasion they passed a night on the Rothsattel (10,927 ft.), which unites the Finsteraarhorn with the Rothhorn; and Hermann also stayed two days and a half on the Col St. Théodule (11,001 ft.). Here, they merely suffered at times from the cold, the effect of rarefied air not being felt at such a height, nor does it indeed make itself apparent, under ordinary circumstances, even on the loftiest peaks of the Alps. The well known English professors, Tyndall and Frankland, even passed the night of August 21, 1859, on the top of Mont Blanc (15,784 ft.).

[2] See p. 334. With his usual amiability, Humboldt sent to our brother Emil, then staying in Berlin, the following lines, in which allusion is made to our ascent of the Íbi Gámin: "Ihre Brüder waren also in Tíbet, am Abhange "des Íbi Gámin 20,886 Par. Fuss hoch, nicht blos höher als ich und Boussingault am Chimborazo, sondern 786 Par. Fuss "höher als dieser." (So your brothers have reached in Tíbet, on the slopes of Íbi Gámin, the height of 20,886 French feet, being not only higher than I and Boussingault got on the Chimborazo, but 786 French feet higher than this mountain itself). We could not adduce a more apposite instance of Humboldt's simple and truly scientific character than is presented in this passage.

[3] The height hitherto attained in *balloons* little exceeds 23,000 ft. We refer more especially to the well known ascent of Gay-Lussac, performed as early as the beginning of this century (Sept. 16, 1804), when he rose to 23,020 ft. (see "Humboldt's Essai sur la géographie des plantes," Paris, 1807, p. 145.), and also to the subsequent attempts of Bixio and Barral. Within the last few years ascents have been made in England, in connection with experiments instituted by a scientific committee, among whose members it is sufficient only to name Sabine and Sykes. See "Philosophical Transactions," 1853, part III.

[4] See p. 422. A view of the Sássar pass, in which the peak in question appears, is given in our Atlas of Panoramas and Views. See plate No. 7.

[5] "Account of Koonawur by Capt. A. Gerard." Edited by G. Lloyd. 1841, p. 291. Subsequently, Aug. 31, 1821 (?), Dr. J. G. Gerard reached 20,400 ft. "As. Res.," Vol. XVIII., part II., p. 254.

to a height of 19,286 ft.,[1] this being the extreme elevation attained at that period. Some years afterwards (Dec. 16, 1831) Boussingault reached, on the same peak, a height of 19,695 ft.[2]

The *effect of height* is chiefly perceptible in the decrease of temperature and barometric pressure. The temperature, on such days at least as must be selected for reaching extreme heights, differs not considerably for the chains of High Asia, if compared with the Alps, the difference of latitude nearly compensating for the inequality of height. But the decrease of pressure is in direct proportion to the absolute height.[3] There are certainly other modifications of the atmosphere connected with height, such as moisture, chemical composition, electricity, &c.; but these varying within limits so narrow as to necessitate the application of instruments for their detection and definition, do not affect the human frame in any unusual degree.

Although, from optical phenomena, 70 or 80 English miles have been approximatively assigned as the extreme upper limit of the atmosphere, the decrease of density is so much greater in the lower strata that, even at an elevation of 22,200 ft. (so trivial a proportion of the entire assumed distance), we observed a barometric pressure of 13·364 inches, so that nearly $^3/_5$ths of the weight of the atmosphere lay below the point reached by us at the time. At the height of about 18,600 or 18,800 ft., the atmospheric pressure is $^1/_2$ of that at the level of the sea.

It is evident that there must be a limit beyond which the degree of rarefaction is incompatible with the conditions of human existence; but it will ever remain extremely difficult, if not altogether impossible, to determine the line of demarcation with any approach to scientific precision. There are many and variable elements to be taken into account. Among others, the general state of health of the individual observer, his power of resistance, and of adaptation to new conditions, the time spent at these unusual heights, and the more or less favourable progress of inurement to the effects of diminished atmospheric pressure, are all conditions of great moment in affecting every particular result.

[1] "Kleinere Schriften," p. 151. The height of 19,286 ft. is the definitive value deduced by Humboldt after a careful re-calculation. The height he had formerly obtained was 19,388 ft. See his "Essai sur la géographie des plantes." Paris, 1807, p. 145.

[2] Ibid. p. 157.

[3] The variation of pressure, as dependent upon the region of the globe, is not important enough to deserve more than a passing recognition, when considering such unusually low readings of the barometer.

The degree of motion of the atmosphere (the wind) exercises, we found, so marked an influence as to deserve more particular notice hereafter.

As to the beneficial effect of acclimatisation, we can speak from our own personal experience. In going over passes of 17,500 and 18,000 ft. for the first time, we felt considerable inconvenience and distress; a few days later, after crossing several of the higher passes, and spending some nights on these heights, we found ourselves on the whole tolerably free from the usual unpleasant symptoms, even at heights of 19,000 ft. What might have been the consequence had we prolonged our stay in these lofty regions[1] it is impossible to say, the probability, however, being that a longer sojourn would have told severely upon our health.

The influence of height varies with the individual, a man in good health having the chance of less suffering. The difference of race has apparently no appreciable importance. Our Hindu servants, who, though not following us up to the greatest heights, yet had to cross the passes, suffered far more from the cold than our Tibetan companions, though not more from the diminished pressure. For the generality of people the influence of height begins at 16,500 ft., a height nearly coinciding with that of the highest pasture-grounds visited by shepherds. Of the tame animals brought with us, the horses and camels alone evinced decided symptoms of suffering from the rarefaction of the air, though these were not observable at a height of less than 17,500 ft.

The complaints produced by diminished pressure are: headache, difficulty of respiration and affection of the lungs, the latter even proceeding so far as to occasion blood-spitting,[2] want of appetite and even sickness, muscular weakness and a general depression and lowness of spirits. All these symptoms, however, disappear in a healthy man almost simultaneously with his return to lower regions. The effects here mentioned were not sensibly increased by cold, but the *wind* had a most decided influence for the worse upon the feelings. As this was a new phenomenon to us, and one that we had not hitherto found mentioned by former observers, we directed our particular attention to it, and remarked instances where fatigue had absolutely nothing to do with it. In the plateaux of the Karakorúm it was a common occurrence, even

[1] We allude here more especially to our excursions in the environs of the Íbi Gámin peak. See pp. 481–2.

[2] Bleeding of the nose, we experienced ourselves, though very rarely, the loss of blood on such occasions being insignificant; but bleeding of the ears and lips we neither experienced personally nor observed in others.

for the sleepers in the tents, where they might be considered as somewhat protected, to be waked up in the night with a heavy feeling of oppression, the entire disturbance being traceable to a breeze, not even a very strong one, which had sprung up during the hours of rest. When occupied with observations, we took very little, if any bodily exercise, sometimes for 36 hours, and the attendants still less than ourselves; it would frequently occur, nevertheless, even in heights not reaching 17,000 ft., that an afternoon or evening wind would make us all so sick, as to take away every inclination for food. No dinner was cooked; the next morning, when the wind had subsided, the appetite was the better. As a rule, we were less affected in the morning than the evening, though the inference to be derived from this observation must doubtless be influenced by the circumstance, that high breezes generally sprang up in the afternoon, even on favourable days and during the continuance of fine weather.

The effects of diminished pressure are considerably aggravated by fatigue. It is surprising to what a degree it is possible for exhaustion to supervene; even the act of speaking is felt to be a labour, and one gets as careless of comfort as of danger. Many a time our people—those who ought have served us as guides—would throw themselves down upon the snow, declaring that they would rather die upon the spot than proceed a step further. From common motives of humanity we were then often reluctantly obliged to interfere in their behalf, and to rouse them by force from the stupor into which they had fallen, though at the time we ourselves were scarcely in better spirits than they.

B. GEOGRAPHICAL CONFIGURATIONS.

1. PLATEAUX AND LAKES.

Plateaux, in consequence of their being more or less intersected by deep and broad valleys, or from being covered with ridges, are so variable in their form, that the use of the name, in many instances, appears to be somewhat arbitrary. We prefer not to extend the meaning of the name too far, and in so doing diverge from the practice of earlier travellers, who commonly applied the term to every mountainous region of great *general* elevations—as the natives of the Himálaya have a tendency to do—irrespective of its form.

In *India* there are many plateaux, which, for the most part, lie in the Dékhan, Maissúr, and Málva; they are well defined, but of low elevation, and very limited in extent as compared with those of the Andes or Turkistán. Among the most important are Mahabaléshvar (4,500 ft.), Amarkántak (3,590 ft.), and Kondikónda (3,070 ft.).

In the *Himálaya*, which is composed in almost every direction of lofty and irregular ridges, and intersected by numerous valleys of inconsiderable width, no plateau of any extent has been discovered as yet, nor is it at all probable, that one exists.

Western Tíbet was for a long time supposed to be little else than a country of plateaux—an erroneous impression emanating from the first observers, though Humboldt, with his usual sagacity, had early pointed out the error of this belief.[1] Plateaux certainly do occur in Tíbet; they are, however, much less numerous and considerably smaller than we had been led to expect.

Tíbet may be best described, in short, as a longitudinal valley included between the Himálaya and Karakorúm, and covered with many lateral ridges.

In its *eastern part* it is drained by the Dihóng, an affluent of the Brahmapútra. The height of its capital, Lhássa, may be estimated at 10,000 ft.

[1] "Ansichten der Natur," Vol. I., p. 104.

Its *central part* is formed by the gradual rising of the ground in the environs of the lakes Mansaráur and Rákus Tal, the average height being 15,400 ft.

The *western part* is drained by the Indus and Sátlej rivers, with their affluents; it comprises Gnári Khórsum, Ladák, and Bálti. The principal towns of these provinces are: Gártok (15,090 ft.), Leh (11,527 ft.), and Skárdo (7,255 ft.).

The unusual height of some of the valleys of Western Tíbet, as compared with those in other parts of the globe, may not improbably have a considerable share in the erroneous belief deduced from early reports as to this country being almost exclusively a plateau.

Instances of two river-systems belonging to one general longitudinal depression are not unfrequent on a minor scale, though Tíbet must be considered perhaps as the largest form of this kind. In the Alps, the Upper Engadin with the Val Bergell, and the valley of the Vorder-Rhine with that of the Rhône, can be mentioned as somewhat analogous.

Between the *Karakorúm* and the *Kuenlúen*, especially near the western crest of the former, several well defined plateaux of extraordinary height occur. Some of the highest are called: Dápsang (17,500 ft.), Búllu (16,883 ft.), Aksáe Chin (16,620 ft.), Voháb (16,419 ft.). In Bálti, the plateau Deosái is 14,200 ft. high.

In the *Andes* are to be found, if not the highest, at least the most extensive plateaux of our globe, which generally lie along the very ridge of the mountains. Their average heights differ but little from those of the towns mentioned above.[1]

There is also a large plateau surrounding the elevated lake Titicaca (12,843 ft.).

In the *Alps*, plateaux occur only at their base; the Swiss plateau having a mean height of 1,460 ft., the Suevo-Bavarian plateau of 1,420 ft.[2] It is here that the principal Alpine lakes are situated. In the Himálaya there are no such picturesque plains adorning the foot of the mountains. The watershed between the Indus and the Ganges is altogether upon a lower level, and no connection with the Himálaya exists, similar to that between the Swiss plateau and the Alps.

Lakes are comparatively rare in *India*, but large "Jhíls" are occasionally to be seen, especially in the river systems of the Ganges and Brahmapútra. For the most

[1] See p. 481.

[2] Hermann and Adolphe: "Phys. Geogr. d. Alpen." Vol. II., p. 577.

part they are not very deep; their surface is very variable, and many of them are entirely dry during the hot season. *Tanks* are frequently met with; their numbers throughout the country testify the importance attached to them by the natives. Some of the tanks in Maissúr and the Karnátik are of surprising dimensions.

In the *Himálaya* also, there are but very few lakes. That of Nainitál, in Kămáon (6,520 ft.), the Vúllar lake, in Kashmír (5,126 ft.), and the Chinár lake, near Srinágger, at about the same height, suffice to exhaust the category of those deserving mention.

Glacier lakes — accumulations of water formed by one glacier obstructing the outlet of a higher one — are of much more frequent occurrence. At times, the wall of ice breaks away before the pressure of the swollen waters, when the lower lands become suddenly inundated, and the torrent rushes on with uninterrupted violence for miles, exercising a marked influence even down to the lower parts of the rivers.[1] Two of the most elevated glacier lakes are the Déo Tal, in Gărhvál (17,745 ft.), and the Námtso, or Yunám, in Lahól (15,570 ft.).

Western Tibet and *Turkistán* possess many lakes, all of which are situated in great heights; they are, however, gradually drying up, as becomes apparent by the unmistakeable marks of larger surfaces remaining from former times. They contain a greater quantity of salt than lakes in general, and most of them to an amount which renders them more or less brackish. The water of some, however, is still drinkable; among these we particularly mention the Hánle and the Upper Tsomognalarí lakes.[2]

LAKES OF WESTERN TÍBET AND TURKISTÁN.

Aksáe Chin	16,620 ft.	Níma Kar	15,100 ft.
Tso Gyagár	15,693 „	Hánle	14,600 „
Tso Kar, or Kháuri Taláu	15,684 „	Tso Gam	14,580 „
Múre Tso	15,517 „	Tso Rul	14,400 „
Kiúk Kiŏl	15,460 „	Tso Mitbál	14,167 „
Mansaráur, or Tso Mápan	15,250 „	Upper Tsomognalarí	14,050 „
Rákus Tal, or Tso Lánag	15,250 „	Lower Tsomognalarí	14,010 „
Tsomoríri	15,130 „		

[1] Similar inundations, some of them of a most destructive character, have several times occurred in Tíbet. See "Vigne's Kashmír," Vol. II., p. 362, "Cunningham's Ladák," pp. 99, et seq., and "Capt. Montgomerie's Memorandum."

[2] See the diagram of the Lakes: plate VI. of the "Panoramic Profiles of the Snowy Ranges of High Asia."

PASSES.

In *India*, the highest pass is the Sígur, in the Nílgiris (7,204 ft.). The Rangbódde pass, in Ceylon (6,584 ft.), is little inferior in height. Of the numerous passes (Ghāts) occurring in the Western Ghāts, the Bapdéo and the Katrúj both exceed 3,000 ft., the former being 3,499 ft., the latter 3,019 ft.

For *High Asia*, the mean of a sufficient number of such passes which lead over the three principal *crests* is particularly to be taken into consideration, it being approximatively proportional to the mean height of these crests. The passes situate in the lateral ramifications of the principal crests—though they are numerous—cannot be included in these general means, being geographically of subordinate importance.[1]

The mean height[2] of passes is as follows, the values being based on the heights contained in the table at p. 492.

a. For the Himálaya . . . . . 17,800 ft.

From Síkkim to Kishtvár; Bhután and Kashmír being excluded; the former for want of materials, and Kashmír on account of the Himálaya there losing the character of one well defined and predominant chain.

b. For the Karakorúm . . . . . 18,700 ft.

We have data only from Long. E. Gr. 76° to 79½°, the heights in the eastern continuation being quite unknown.

c. For the Kuenlúen . . . . . 17,000 ft.

Here we know the height of two passes only. As they are situated, however, in parts not differing, in any important particular, from the general character of this chain, they may be looked upon as representatives of the others.

From these numbers it appears, that the Karakorúm has by far the greatest mean height of passes; but the one pass which we must still consider the highest is situated in the Himálaya. This is the *Ibi Gāmin pass* (20,459 ft.), leading from Gărhvál to Gnári Khórsum, which we crossed August 22, 1855. It is known to the natives of Mána and Bádrinath, some of whom, about 36 years ago, once ventured to cross it with their laden sheep. The Mána pass at that time was infested by

[1] We have had occasion to cross one pass of above 20,000 ft., one above 19,000 ft., six between 19,000 and 18,000 ft., nine between 18,000 and 17,000 ft., &c.

[2] The precise figures are: Himálaya 17,789 ft., Karakorúm 18,721 ft., and Kuenlúen 16,999 ft.

robbers, and the difficulties encountered, as also the loss of sheep and merchandize experienced on this occasion, were so considerable as to induce the natives to give up all idea of using the route as a commercial road.

Some comparisons with other and more familiar instances of elevation will tend to furnish a more adequate idea of the extraordinary height of this pass. The one coming nearest to Íbi Gámin in height, the Mustágh pass in Bálti, is 1,440 ft. lower. We may remark incidentally, that the Íbi Gámin pass is only 1,800 ft. below the highest point attained by us on the peak of the same name. This pass exceeds the highest in the Andes by 4,869 ft., Mont Blanc by 4,676 ft., and the highest pass in the Alps by 8,580 ft.

The *Mustágh pass* (19,019 ft.) and the *Íbi Gámin pass* (20,459 ft). are, however, the only two as yet known above 19,000 ft. The third in height is the Changchénmo, (18,800 ft.), in the Karakorúm chain, but none of these, it should be borne in mind, are generally used, or crossed as commercial roads; they are evidently too high and too difficult of access. The highest pass as yet known to be regularly crossed with horses and sheep, for the purposes of commerce, is the Párang pass, in Spíti (18,500 ft.); and between this height and 18,000 ft. are situated several of the most important and frequented passes, as the Mána (18,406 ft.), the Karakorúm (18,345 ft.), and the Kióbrang (18,313 ft.). Over none of these, or other high passes, however, does anything lead at all approaching to the European idea of a road. Though below the glacier region a kind of foot-path is certainly discernible—very often a row of small stripes running parallel to each other—yet as soon as a glacier is ascended, or one of its ancient or present moraines, all such traces at once disappear. The general direction to be taken is indicated by stones, not unlike glacier tables, which the natives place along the line of route as way-marks; though in many parts, as on the Turkistáni road, north of Ladák, the uncertainty about the path to be followed is often removed by the appearance of the numerous skeletons of beasts of burden which distinguish the tracks of former caravans.

The Himálayan passes above 16,000 ft. are invariably closed by snow during the winter months between November[1] and May; even in the beginning of June, it is extremely difficult to cross a pass above 17,000 ft.

[1] In December, 1845, when the Chinese fought a battle near Tirthapúri, in Gnári Khórsum, the garrison of Táklá Khar fled across the pass near the head of the Káli river. Even in this unopposed flight, one half of the men were killed by frost, and many of the remainder lost their fingers and toes. See "Cunningham's Ladák," 1854, p. 353.

In the Karakorúm, the snow-line is so elevated, and the absolute quantity of snow falling so small, even in winter, that the passes are never entirely closed. The Karakorúm can thus always be crossed even with horses, and the caravan road from Ladák to Turkistán accordingly remains passable throughout the year, though during the cold season, in order to avoid the Sássár pass,—one of the most difficult parts of this route even in summer—the merchants prefer going up to the Karakorúm along the Shayók river.

In the Küenlúen, all passes above 15,000 ft. are, as we heard, closed in winter by the heavy snow-fall.

In the *Andes*, the general mean elevation of the passes is, according to Berghaus:[1]

For the Western Andes . . . 14,500 ft.
For the Eastern Andes . . . 13,500 „

The highest passes are: Alto de Toledo (15,590 ft.)[2], Lagunillas (15,590 ft.),[2] and Assuay (15,526 ft.).[3]

In the *Alps*, we adopted as the mean for the passes. . . 7,550 ft.

As the highest pass, at least in former times, not unfrequently used for commercial purposes, we may refer to the St. Théodule pass (11,001 ft.).[4] There are, however, besides *indentations* (*Scharten*) practicable for travellers, which are considerably higher,—exceeding 12,000 ft. Among others is the Old Weissthor, which we found to be 11,871 ft.[4]; another pass, the passage to Saas, recently called the New Weissthor, is marked on our map of Monte Rosa with the height of 12,136 ft. The height of the Col du Géant in the Mont Blanc group is 11,197 ft.[4]

[1] Berghaus: "Zeitschrift für Erdkunde," Vol. IX., pp. 322—6.
[2] Pentland's Map: "La Laguna de Titicaca and the valleys of Yucay, Collao, and Desaguadero," London, 1818.
[3] Humboldt's "Ansichten der Natur," Vol. I., p. 123.
[4] Hermann and Adolphe: "Phys. Geogr. d. Alpen," Vol. II., pp. 30 and 32.

TABLE OF THE PRINCIPAL PASSES.

A. IN INDIA.

1. Dékhan.

Name.	Feet.	Name.	Feet.
Bapdéo	3,499	Pochámа	2,446
Katrúj	3,019	Nána	2,429
Pãr	2,698	Jãm	2,328
Nagchérri	2,645	Málsej	2,062
Náni	2,617	Tal	1,912
Sálpi	2,478	Bhõr	1,798

2. Málva.

Name.	Feet.
Péndera	3,498
Sílva	1,928
Mándla	1,626
Póppera	1,560
Gúmba	1,553
Singrámpur	1,437

3. Karnátik, Nílgiris, and Ceylon.

Sígur	7,204	Rangbódde	6,589	Gantvarpílli	2,373
Sispára	6,742	Kodúr	2,401	Kistnaghérri	2,150

B. IN THE CREST OF THE HIMÁLAYA from Síkkim to Kíshtvár.

Ibi Gãmin	20,459	Umási	18,123	Kiúngar	17,331
Dónkia	18,488	Lángpia	17,750	Níti	16,814
Jánti	18,529	Máyang	17,700	Vallanchún	16,756
Párang	18,500	Lípu	17,670	Púling	16,726
Mána	18,406	Úta Dhúra	17,627	Shínku La	16,684
Nélong	18,312	Birmkánta	17,615	Bára Lácha	16,186
Kióbrang	18,313				

C. IN THE CREST OF THE KARAKORÚM from Long. E. Gr. 76° to 79° 30′.

Mustágh	19,019	Changchénmo	18,800	Karakorúm	18,345

D. IN THE CREST OF THE KUENLÚEN from Long. E. Gr. 78° to 80°.

Élchi	17,379	Yurungkásh	16,620

E. IN THE ANDES.

Alto de Toledo	15,590	Lagunillas	15,590	Assuay	15,526

F. IN THE ALPS.

St. Théodule	11,001	New Weissthor[1]	12,136	Old Weissthor[1]	11,871

[1] These two passes cannot be used for practical purposes.

3. PEAKS.[1]

In *India*, the highest peak, Dodabétta (8,640 ft.),[2] is situated in the Nílgiris, in Southern India.

Of the peaks in the central parts of Ceylon, the Póduru tálla gálle reaches about the same height, rising up to 8,305 ft.; the well known Samanála, or Sripáda (Adam's Peak), attaining 7,385 ft.

In the mountain chains of Central India, in the *Vindhya* and *Araválli* ranges, the peaks are considerably lower (Ábu, 3,850 ft., Rajmirgárh, 3,753 ft.).

The Kalsubái, the highest peak of the Dékhan, attains only 5,410 ft..

High Asia. In the beginning of this century the Andes were supposed to contain the highest peaks on our globe, and Chimborazo to rise supreme above the rest. Though, as early as 1816, this was proved by Captain Webb's measurements to be incorrect, yet some time elapsed before the superiority of the Himálaya above the Andes was generally admitted. At present (Nov. 1861) the number of peaks on the ranges of High Asia that are known to exceed the highest summit of the Andes, is remarkably great, amounting to forty-five.

In the *Himálaya*,[3] Gaurisánkar, or Mount Everest (29,002 ft.), is the highest peak in the world yet discovered; it is 6,000 ft. higher than the dominating peak of the Andes, and 13,220 ft. above the most elevated parts of the Alps.

In the *Karakorúm*, peaks have lately been discovered which are scarcely inferior in height to the loftiest in the Himálaya, though only its western part has as yet been explored. With regard to the heights of its eastern continuation, there is not enough known to allow even of an estimate being made.

The highest peaks of the Karakorúm are the Dápsang (28,278 ft.), the Diámer (26,629 ft.), and the Masheribrúm (25,626 ft.).

With reference to the *Kuenlúen*, we can only mention the peaks that we saw between the Yurungkásh pass and the western termination of this chain; our idea

[1] We here exclude, as not properly belonging to the regions to be compared, the countries north-east of Assám, with the Gri peak (15,300 ft.), and the Sóliman range to the west of the Indus, of which the highest peak, the Sufed Koh, rises to 14,829 ft.

[2] At its top there is a small observatory. See p. 475.

[3] Notwithstanding their great elevation, none of the peaks of the Himálaya are visible from the sea, in consequence of their continental position.

about the general height is the more limited, as we have not even itinerary reports of former travellers to assist us. None of the peaks seen there by ourselves exceeds 22,000 ft.

Our volume contains the geographical co-ordinates (latitude, longitude, and height) of 132 peaks belonging to these three mountain ranges, which exceed 20,000 ft. in height, while one of them actually reaches 29,000 ft. (Gaurisánkar, or Mount Everest), and two range between 29,000 and 28,000 ft. (Dápsang and Kanchinjínga).

The relative numbers of the others are:

Relative Numbers.	From Feet.	To Feet.	Relative Numbers.	From Feet.	To Feet.
2	28,000	27,000	14	24,000	23,000
6	27,000	26,000	26	23,000	22,000
10	26,000	25,000	23	22,000	21,000
10	25,000	24,000	38	21,000	20,000

In the *Andes*, important alterations have very recently been made with reference to the succession of the peaks, when arranged according to height, and even now the same amount of accuracy cannot be ascribed to the hypsometrical determination of its principal peaks[1] as to the trigonometrical operations in the Himálaya. The highest peak in the Andes is the Aconcagua (23,004 ft.); and there are as many as five peaks higher than the Chimborazo (21,422 ft.).

In the *Alps*, Mont Blanc (15,784 ft.) and Monte Rosa (15,223 ft.) are well known to be the highest peaks. In the tables of comparison, we have added a list of peaks above 14,000 ft., but have given the highest summit only in every group, in order not to extend the space unnecessarily.

[1] Humboldt's urgent wish to see these heights re-determined has not yet been realized. See his "Kleinere Schriften," p. 158.

TABLE OF THE PRINCIPAL PEAKS.

A. IN INDIA.

1. Nílgiris.

Name.	Feet.	Name.	Feet.
Dodabétta	8,640	Kundamóya	7,816
Bevoibétta	8,488	Tambarbétta	7,292
Makúrti	8,402	Kokalbétta	7,267
Daversolabétta	8,380	Urbétta	6,915
Kúnda	8,353	Daverbétta	6,571

2. Ceylon.

Name.	Feet.
Péduru tálla gálle	8,305
Kirigalpótta	7,810
Totapélla	7,720
Samanála, or Adam's peak	7,385
Namúna Kúli	6,760

3. Central India.

Parisnáth	4,469
Ábu	3,850
Rajmirgárh	3,753
Búlbul	3,354

4. Dékhan.

Kalsubái	5,410	Pútta	4,569
Dhórup	4,715	Ikhára	4,482
Varáda	4,655	Áunda	4,339
Tórna	4,619	Mándvi	4,123

B. IN THE HIMÁLAYA.

Gaurisánkar	29,002	Yássa	26,680	Nánda Dévi	25,719
Kanchinjínga	28,156	Jibjíbia	26,306	Íbi Gámin	25,550
Síhsur	27,799	Barathór	26,069	Naráyani	25,456
Dhavalagíri	26,826	Yángma	26,000	Jánnu	25,304

C. IN THE KARAKORÚM.

Dápsang	28,278	Diámer	26,629	Masheribrúm	25,626

D. IN THE KUENLÚEN.

The peaks seem not to exceed 22,000 ft.

E. IN THE ANDES.

Authorities: *H* = Humboldt; *K* = Kellet and Wood; *P* = Pentland.

Aconcagua [1]	23,004 *K*	Gualateiri [2]	21,960 *P*	Sorata, or Ancohuma [4]	21,286 *P*
Sahama [2]	22,350 *P*	Pomarape [2]	21,700 *P*	Illimani [4]	21,145 *P*
Parinacota [2]	22,030 *P*	Chimborazo [3]	21,422 *H*		

F. IN THE ALPS.

Mont Blanc	15,784	Weisshorn	14,813	Grand Combin [5]	14,134
Monte Rosa	15,223	Mont Cervin [5]	14,787	Strahlhorn	14,100 ?
Täschhorn, or Lagerhorn	14,954	Dent Blanche [5]	14,305	Finsteraarhorn	14,039

[1] Seemann, "Reise um die Welt," 1845–51, Vol. I., p. 40, and Humboldt's "Kleinere Schriften." *Errata*

[2] Humboldt's "Ansichten der Natur," Vol. I., p. 342. [3] "Kleinere Schriften," p. 166.

[4] "Ansichten der Natur," Vol. I., p. 341; "Kleinere Schriften," pp. 166–9.

[5] The heights are taken from p. 511 of "Peaks, Passes, and Glaciers," edited by J. Ball, London, 1859; the others, for which no modification is known to us since 1854, are from our "Phys. Geographie der Alpen."

C. PHYSICAL PHENOMENA.

1. SNOW-FALL, SNOW-LINE, AND GLACIERS.

Snow-fall in India Proper, has, we believe, never been recorded, not even a sporadic fall on the top of its highest peak, the Dodabétta (8,640 ft.).

In the *Himálaya*, the lowest height at which snow has fallen in winter is about 2,500 ft.; but such cases are extremely rare, having occurred in Kămáon and Gărhvál only twice (in 1817 and 1847), since the British took possession of the country.[1] At an elevation of 5,000 ft. scarcely one year in ten passes by without snow-fall; but at this height the snow disappears after a few days, and sometimes even hours. "It snows, but one does not see it," the natives of Kathmándu (4,354 ft.) told us; meaning, that the rare nightly snow-falls are melted away by the earliest rays of the sun. 6,000 ft. may be assigned as the limit where snow regularly falls in winter with a probability of remaining some time upon the ground.

In *Western Tíbet* and in the *Karakorúm*, the general elevation of the country is so great, even in its lowest regions, that no part lies below the limit of hibernal snow-fall. But the quantity of snow actually falling is inconsiderable, and this circumstance it is which forms one of the chief causes, that the passes of the Karakorúm—even the highest—remain open throughout the year. In some parts of Tíbet, the winter is the only season when atmospheric precipitation at all takes place.

In the *Kuenlúen*, even on its southern slopes, a greater amount of snow is precipitated than on the northern side of the Karakorúm, while its Turkistáni (northern) slopes differ still more from the Karakorúm in this respect, being visited by very heavy rains and great snow-falls. Even at Káshgar (3,500 ft.), there are said to be several snowy days every winter.

[1] Colonel R. Strachey, in the "Journal of the Asiatic Society of Bengál," Vol. XVIII., p. 309.

The *snow-line*, or the average height where snow remains perpetually throughout the year, has offered unexpected difficulties in its determination for the *Himálaya*. When Webb and Moorcroft first pointed out the general heights reached by the snow-line, when they first discovered the remarkable fact, that, in spite of the influence arising from exposition, the snow-line of the Himálaya descends lower on its *southern* (Indian) than on its *northern* (Tibetan) slopes, the statements of these travellers, now proved to be correct in all material points, were discredited by men of science both in Europe and in India. Humboldt, however, was among the first who endeavoured to remove the distrust with which these discoveries were received; he also gave an explanation[1] of the causes which were possibly sufficient to originate so remarkable a phenomenon as this of the unlooked for differences existing between the snow-lines of the Tibetan and Indian slopes. He considers it, "the result conjointly of the "radiation of heat from the neighbouring elevated plains, the serenity of the sky, and "the infrequent formation of snow in very cold and dry air." Of all these causes, however, the last is the most important. The direct insolation, being less interrupted on the Tibetan side, has also its share of influence; but the effect is comparatively small. As the best corroboration of the quantity of snow-fall being the principal cause of the depression on the southern (Indian) slope of the Himálaya, may be adduced the fact, that we found the isothermal lines for the year and the summer, which coincided with the snow-line on the Indian side, decidedly warmer than those on a level with the Tibetan snow-line.[2]

The fact, moreover, of the *Karakorúm*—though on an average 3° farther north—having the snow-line so excessively high on both its slopes, offers another instance of the influence of limited precipitation.

In the *Kuenlúen*, the meteorological conditions also become apparent in the different limits of the snow-line on either side; but here the effect is the reverse of that perceived in the Himálaya, the greater precipitation on the "northern" slopes (towards

[1] "Annales de Chimie et de Physique," Vol. XIV., pp. 5—55; "Asie Centrale," pp. 284—327; "Kosmos," Vol. I. p. 358.

[2] The detail of these calculations will be given in the meteorological part of our publications; they are made on the same principle as that adopted in our work upon the Alps. "Phys. Geogr.," Vol. I., p. 353, and Vol. II., Atlas, plate 22. That the "plains" of Tíbet are too distant and inconsiderable to form an element of disturbance in the matter has already been proved by Colonel R. Strachey. See "Journal of the Asiatic Society of Bengál," Vol. XVIII., p. 305.

the plains of Turkistán) lowering the snow-line on that side to a considerable extent.

Although in the Himálaya at large the snow-limit of the Tibetan side does not descend so low as that of the Indian, yet the influence of exposition at once becomes apparent in the ordinary sense, corresponding to these latitudes, if we examine the slopes of a crest or mountain, of which, by the nature of its position, both slopes belong either to the Indian side of the ridge in general, or to the Tibetan side. The many and vehement disputes upon the much discussed subject of snow-limits, have chiefly arisen from the entire neglect of this modification.

The number of data collected in the Himálaya by Jacquemont, Vigne, Hügel, the Stracheys, Cunningham, Thomson, and others, and by ourselves also in the Karakorúm and Kuenlúen (of the latter we have no data whatever for comparison), enables us to present in this place very well defined means for the snow-line. At another place, in connection with our meteorological researches, we shall have occasion to consider the minor modifications and their dependency upon meteorological and local conditions.

The values we obtain for the height of the snow-line on the three mountain chains of *High Asia* are:

	Feet.
a. HIMÁLAYA:	
Southern (Indian) slopes	16,200
Northern (Tibetan) slopes	17,400
b. KARAKORÚM:	
Southern (Tibetan) slopes	19,400
Northern (along the Turkistáni plateaux)	18,600
c. KUENLÚEN:	
Southern (facing mountainous ramifications)	15,800
Northern (facing the Turkistáni plain)	15,100

For the *Andes*, the snow-limits are, according to Humboldt[1] and Pentland:

	Feet.
Eastern Andes of Bolivia	15,900
Western Andes of Bolivia	18,500
Andes of Quito	15,700

[1] "Central Asien," 1817, Vol. II., p. 165 and 177. See also p. 213, where Humboldt has given a hypsometrical tableau of the snow-limit on both hemispheres.

For the *Alps*, Hermann and Adolphe obtained:[1]

	Feet.
Southern slopes	9,200
Northern slopes	8,900
Extremes (near the Mont Blanc and Monte Rosa group)	9,800

The existence of *glaciers* in *Western Tibet* was first made known by Vigne, who alludes to them in his "Travels in Kashmír," 1842, in the second volume, p. 285. Colonel Richard Strachey[2] was the first who proved their existence (in 1847) in the *Himálaya*. The recent date of this discovery will appear the more surprising, when the immense number of glaciers now positively ascertained to be in this region is taken into consideration. The great amount of ice to be met with, even in lower elevations of the Himálaya, could not of course entirely escape the observation of previous travellers; these masses, however, they used to designate as "hard-frozen snow-beds," and to consider them as local phenomena, analogous to remains of avalanches.

On the northern side of the Karakorúm and in the Kuenlúen we also found glaciers having forms identical with those of the Alps. Some of them were considerably larger than the glaciers in Europe.

In the *Himálaya*, the lowest glaciers go down to 11,000 and even 10,500 ft.; the Píndari ending at 11,492 ft., the Timtímna at 11,430 ft., the Tsóji at 10,967 ft., and the Cháia at 10,520 ft.

In *Western Tibet* they descend to about the same elevation; thus, the Mustágh to 11,576 ft., the Tap 11,508 ft., the Támi Chúet 10,460 ft., the Bépho glacier near Áskoli even to 9,876 ft. The latter is worthy of notice as a remarkable case of low termination.

In the *Kuenlúen*, the glaciers end probably at heights not much differing from those in Western Tíbet; at least so we infer from the height of the snow-limit that we had the opportunity of measuring, as also from the general appearance of the upper part of the glaciers we saw during our travels in these regions. The glaciers on both flanks of the Élchi pass presented, however, no instances of particularly deep descent.

[1] Hermann and Adolphe: "Physicalische Geographie der Alpen," Vol. II., pp. 512, 596.

[2] "Journal of the Asiatic Society of Bengál," Vol. XVI., part II., p. 794, et seq., and Vol. XVII., part II., p. 203, et seq.

In the *Andes*, no glaciers are known to exist.[1]

In the *Alps*, the lowest glacier is that of Lower Grindelwald, ending at 3,290 ft.;[2] but in general 5,000 ft. must be considered as a rather low end of a glacier.

2. LIMITS OF VEGETATION AND ANIMAL LIFE.

a. VEGETATION.

Trees grow very generally in the *Himálaya* up to heights of 11,800 ft., and in most parts there are extensive forests covering the sides of the mountains at but a little distance below this limit.

In *Western Tibet*, we found nothing at all corresponding to a forest. Apricot trees, willows, and poplars, are frequently cultivated on a large scale; poplars, indeed, are found at Mángnang, in Gnári Khórsum, at a height of 13,457 ft., but they are the objects of the greatest care and attention to the lamas.

In the *Kuenlúen*, we found the trees on its northern side not to grow above 9,100 ft. On the southern side, we met no trees at all; here the considerable height of the valleys we passed, excluded them. In the *Andes*, they end at about 12,130 ft.; in the *Alps*, on an average, at 6,400 ft., isolated specimens occurring above 7,000 ft.

The *cultivation of grain* coincides in most cases with the highest permanently inhabited villages; but the extremes of cultivated grain remain below the limit of permanent habitation. In the *Himálaya*, cultivation of grain does not exceed 11,800 ft., in *Tibet* 14,700 ft., and in the *Kuenlúen* 9,700 ft. For the *Andes*, the limit is 11,800 ft.;[3] in the *Alps*, some of the extremes are found near Findelen, at a height of 6,630 ft., but the mean is about 5,000 ft.[4]

The upper mean limit of *grass vegetation* in the *Himálaya* is at 15,400 ft.; in *Western Tibet*, nearly the same level as for the highest pasture grounds, 16,500 ft., may be adopted; in the *Kuenlúen*, grass is not found above 14,800 ft.

Shrubs grow in the *Himálaya* up to 15,200 ft., in *Western Tibet* as high as 17,000 ft., and in one instance, at the Gunshankár, even to 17,313 ft. On the plateaux

[1] Humboldt: "Essai sur la géographie des Plantes." Paris, 1807, p. 133. In his later publications also he maintains the same view. See "Central Asien," 1844, Vol. II., p. 167.

[2] Hermann and Adolphe: "Physicalische Geographie der Alpen," Vol. II., p. 18.

[3] Humboldt: "Essai sur la géographie des plantes," p. 144.

[4] Hermann and Adolphe: "Phys. Geogr.," Vol. II., p. 596.

to the north of the *Karakorúm*, shrubs are found at 16,900 ft., and, which is more remarkable, they occasionally grow there in considerable quantities on spots entirely destitute of grass. As an example, we mention, amongst several others, the Vohál Chilgáne plateau (16,419 ft.), and △ Bashmalgún (14,207 ft.).

In the *Kuenlúen*, the upper limit of shrubs does not exceed 12,700 ft. Above this height grass is still plentiful; and shrubs being here, as generally everywhere else, confined to a limit *below* the vegetation of grass, the range presents an essential contrast in this respect to the characteristic aspect of the Karakorúm.

In the *Andes*, shrubs grow up to 13,420 ft.;[1] in the *Alps*, we found their upper limit to be 8,000 ft., though isolated cases occurred at much greater elevations. As one remarkable extreme, we may mention the growth of Juniper on a rock of the Lys glacier, at 11,164 ft.

The very *extreme limit of phanerogamic plants* appeared in *Western Tibet*, on the north-eastern slopes of the Íbi Gámin pass, at a height of 19,809 ft.; next in order come those of Gunshankár, in Gnári Khórsum, at 19,237 ft. In the *Himálaya*, the highest plants were found at 17,500 ft., on the slopes of the Jánti pass.

In the *Andes*, Colonel Hall found the highest phanerogamic plants on the slopes of Chimborazo, at 15,769 ft.,[2] consequently 4,040 ft. lower than the Íbi Gámin plants.

In the *Alps*, Hermann and Adolphe[3] found an analogous extreme on the southern slopes of the Vincentpyramide at 12,540 ft.

b. ANIMAL LIFE.

Monkeys appear to frequent regions exceeding 11,000 ft. in height, the Semnopithecus schistaceus *Hodgs.* ascending higher than others. These monkeys called "Langúrs" by the natives, have been frequently seen, more especially in Gárhwál and Símla, at the height of 11,000 ft., "leaping and playing about at this elevation," as Captain Hutton says,[4] "while the fir-trees among which they sported, were loaded with snow-wreaths." This species is not known in India, whilst the Macacus Rhesus *Audeb.* is met with as well in India (particularly in Bengál and Assám) as in the Himálaya, where it frequents heights of about 8,000 ft. In Bhután, Turner mentions having seen a large troop of

[1] Humboldt: "Essai sur la géographie des plantes," p. 144.
[2] "Kleinere Schriften," p. 169.
[3] Hermann and Adolphe: "Phys. Geogr. d. Alpen," Vol. II., p. 80.
[4] "Journal of the Asiatic Society of Bengál," Vol. XIII., p. 481.

these animals, which are here held in great veneration, but in Western Tíbet, and farther to the north, no monkeys have yet been found.

Tigers[1] ascend to 11,000 ft. in the Himálaya; they are not, however, seen in Western Tíbet, or the Kuenlúen.

Leopards may be met with in the Himálaya and in Western Tíbet even at 13,000, or 14,000 ft.; on the Kidarkánta (12,430 ft.) one of our sheep was carried away by such a beast of prey.

The *domestic cat* is common in Tíbet.[2] *Dogs* are the companions of the Tibetan shepherds, whom they follow over passes exceeding 18,000 ft., without apparently any particular difficulty. A great variety of wild species also exist in different parts of High Asia.

Jackals were found by us in the Karakorúm between 16,000 and 17,000 ft. Hodgson mentions two species of foxes in Eastern Tíbet.[3] *Wolves* are not known to frequent the Himálaya Proper, but they are found in Western Tíbet, and once we saw traces on sand close to the Karakorúm pass (18,345 ft.), which our people ascribed to a wolf.

Various species of beautiful *wild sheep* and *ibex*, together with the *kiang* and the *wild yak*, are met with in large herds, on the highest plateaux between the Karakorúm and the Kuenlúen, and we have not unfrequently discovered them crossing sandy gravel-slopes at 19,000 ft., and even at 19,800 ft., a height considerably above the limit of sporadic grass vegetation.[4]

With regard to the *smaller mammalia*, we may add, that some species of *bats* are seen in the Himálaya up to 9,000 ft.; and the Tibetan *hare* has surprised other

[1] The *lion*, though intimately connected with the mythology of High Asia, has been forthcoming, in historical times, only in Kashmír. Bernier, at least, had frequent opportunities of witnessing the chase of this animal, an amusement which was reserved for the emperor Aurángzeb alone. Balfour, "Supplem. Cyclopædia of India," Madras, 1858, p. 326. In *India*, the lion occurs only in Gujrát.

There is also an interesting memoir upon the area over which the lion is found dispersed, in "Ritter's Erdkunde von Asien," Vol. IV., part 2, pp. 628, et seq.

[2] In the *Andes*, according to M. de Tschudi, cats and the more delicate breeds of dogs cannot be taken up to heights exceeding 12,800 ft. without fatal results, they generally dying in dreadful convulsions.

[3] "Journal of the Asiatic Society of Bengál," Vol. XI., pp. 278 and 589.

[4] Domestic animals, such as sheep, goats, tame yaks, horses, and dogs, follow man across the highest passes between Turkistán and Tíbet, the two-humped Bactrian camel even being used as a beast of burden. When they were without a load, we experienced no difficulty in bringing these camels even over the steeper passes of the Himálaya.

travellers[1] and ourselves at heights exceeding 18,000 ft., and especially along the road over the Karakorúm pass, where they may almost be said to be numerous.

Migratory birds are not known to cross the Himálaya, as many birds of Europe cross the Alps. Those found at the highest elevations are birds of prey, eagles and vultures being occasionally seen at heights of 22,000, or 23,000 ft. The *Tibetan raven* may be considered their next successor in point of the heights frequented by them. When we were in the neighbourhood of the Íbi Gámin, at an elevation between 16,000 and 22,000 ft., some of these birds followed us for six days to pick up the scraps of food lying about our camp.

Doves were seen by us at very great heights, especially in the Karakorúm and the Kuenlúen; and at △ Murgái (15,448 ft.) they appeared in large numbers. This was the more surprising, as other birds were very rare in these regions.

The domestic *fowl* has recently been introduced with great success by Guláb Singh into Bálti, Ladák, and Núbra. As yet it is unknown in Gnári Khórsum.

Fishes were found by us, as by other Tibetan travellers,[2] in some of the small rivulets of Tíbet at heights exceeding 15,000 ft. In the Alps, they exist at 7,000 ft., though apparently not beyond this limit, it having been hitherto found impossible to acclimatize them in the lakes near the St. Bernard (8,114 ft.).

Of *reptiles*,[3] we found snakes and saurians, in extreme instances, as high as 15,200 ft. In the Alps they go up to 6,000 ft., in the Pyrenees to 7,000 ft.[4] Snakes and saurians appear to reach higher in the Himálaya than Batrachians. In the Alps also lizards and salamanders have a somewhat wider range than the Alpine frog; in one extreme case the lizard "Zootoca pyrrhogastra" was seen on the Umbrail at 9,700 ft.[5]

[1] "Cunningham's Ladák," p. 204.

[2] See "Thomson's Western Himálaya," 1852, pp. 152, 165; "Cunningham's Ladák," p. 206.

[3] See an interesting memoir on this subject in the "Proceedings of the Zoological Society of London, Feb. 28, 1860, by Dr. A. Günther," who kindly undertook to examine our collection of reptiles (118 specimens), amongst which he found two new genera and nine new species.

[4] It seems rather accidental than otherwise, and as hardly consonant with the probable results of a closer investigation, that the highest locality where snakes were found on the Andes (by Mr. Castelnau) is only 7,500 ft.

[5] Hermann and Adolphe: "Physicalische Geographie der Alpen," Vol. II., p. 606.

In the Himálaya, the number of species of snakes and frogs rapidly decreases with height, but of lizards remains nearly the same between 1,000 to 15,000 ft.

For *butterflies*, we found in the Himálaya 13,000 ft., in Western Tíbet and Turkistán even 16,000 ft., as localities of permanent habitation. *Beetles* probably follow the highest formation of grassy turf in the Himálaya, as well as in the Alps. The upper limit of *mosquitoes* is at about 8,500 ft.; and *peepsies* make themselves very troublesome in the Eastern Himálaya during the rainy season as high as 13,000 ft. As in the Alps, the névé-fields of the glaciers are often covered with the remains of insects carried up by the ascending current to 18,000 and even 19,000 ft.

The existence of *infusoria* seems as little subject to limitation by height in the Himálaya, or the other chains of High Asia, as in the Alps. In a few small fragments which we chipped off from the rocks on the Ibi Gámin pass (20,459 ft.), Prof. Ehrenberg detected their presence, and even found them not insignificant in quantity; he discovered twelve species new to science. Some of these infusoria displayed a remarkable identity in external appearance with those that we had formerly collected on Monte Rosa.[1]

In conclusion we add a tabular abstract selected from the materials communicated in the preceding pages, and which we have endeavoured to present in a form allowing immediate comparison.

Though we might have treated the several questions of physical geography with far greater minuteness, yet we have found it necessary to limit the present sketch to those mean results having a direct connection with our hypsometrical materials. We hope, however, at a later stage of publication, to entertain these particular branches more fully and in detail.

[1] See Hermann and Adolphe: "Physicalische Geographie der Alpen," Vol. II., pp. 233—68, and Prof. Ehrenberg's Memoir in "Abhandlungen der Academie der Wissenschaften zu Berlin," 1858, pp. 429—56.

GENERAL TABLE OF THE PRINCIPAL HYPSOMETRICAL FEATURES OF INDIA AND HIGH ASIA

COMPARED WITH THE ANDES AND ALPS.

Object.	India.	Himálaya.	Western Tíbet.	Kuenlúen.	Andes.	Alps.
Highest elevation of: Permanent habitations	Name. Feet. Not limited by climate in the elevations existing:	Name. Feet. Dárche 11,746	Name. Feet. Hánle 15,117	Name. Feet. Búshia 9,310	Name. Feet. Cerro de Pasco 14,098; Potosi 13,665	Name. Feet. Juf . . . . . 7,172; St. Bernard . 8,114
Summer villages	Dodabétta observatory . . 8,640	Kídarnath . . 11,794	Nórbu 15,946	On the northern slopes of the Élchi pass 10,200 – 13,000		Findelen . . . 7,192
Pasture grounds	Utakamánd . . 7,490	Ramchák . . 14,395	Lársa . . 16,349			Fluhalpe . . . 8,468
Plateaux	Mahabaléshvar 4,500	Do not exist.	Dápsang . . 17,500; Highest lake: Tso Gyagár. 15,693		Titicaca . . . 12,843 (Here is also the highest lake).	Swiss plateau . 1,460
Passes	Sígur 7,204	Íbi Gámin pass 20,459	Mustágh . . 19,019	Élchi pass . . 17,379	Alto de Toledo and Lagunillas 15,590	Old Weissthor 11,871; St. Théodule . 11,001
Peaks	Dodabétta . . 8,640	Gaurisánkar . 29,002	Dápsang peak 28,278	Not exceeding 22,000	Aconcagua . . 23,004	Mont Blanc . 15,784
Average height of snow-line . . .	No snow-fall has as yet been recorded.	Northern slope 17,400; Southern slope 16,200	Northern slope 18,600; Southern slope 19,400	Northern slope 15,100; Southern slope 15,800	Quito Andes . 15,700; Western Bolivia Andes . . . 18,500; Eastern Bolivia Andes . . . 15,900	Northern slope 8,900; Southern slope 9,200; Extremes near Montblanc and Monte Rosa . 9,800
Instances of lowest glaciers		Cháia . . . 10,520; Tsóji . . . 10,967	Bépho . . 9,876; Támi Chúet . 10,460	Large glaciers existing, but the lowest unknown.	Only snow-beds, no regular glacier existing.	Lower Grindelwald . . . . 3,290; Several others 5,000
Limits of: Cultivation of grain	Not limited by climate in the elevations existing.	Means 11,800	Means 14,700	Means 9,700	Means 11,800	Means 5,000
Trees		Means 11,800	Means 13,400	Means 9,100	Means 12,130	Means 6,500
Shrubs		Means 15,200	Means 17,000	Means 12,700	Means 13,420	Means 8,000
Highest phanerogamic plants, on the slopes of		Jánti pass . . 17,500	Íbi Gámin pass 19,809		Chimborazo . . 15,769	Vincentpyramide . . . 12,540

EXTREME HEIGHTS REACHED ON MOUNTAINS: a. *In High Asia*: The Schlagintweits 22,259 ft.; G. T. Survey erects a mark at 21,480 ft.; Dr. J. G. Gerard 20,400 ft.
b. *In the Andes*: Boussingault 19,695 ft.; Humboldt 19,286 ft.

II. ALPHABETICAL REGISTER OF THE HEIGHTS DETERMINED.

In the *arrangement* the letters follow the order of the alphabet, irrespective of the signs attached to them.

With reference to the *transcription* used, see the notes at the beginning of Part I. We allude also to the difficulty arising from a mode of transcription which in a few cases may be new to the reader. With respect to the vowels, our strict adherence to their phonetic sound will be found a sufficient guide.

To each name is added the page and the No. (Ábu, 160, 118 = p. 160 No. 118.)

Names without any designation are towns, forts, or villages. △ denotes an uninhabited place, or a pasture ground; *H.S.* = Hill Station; *T.S.* = Tower Station.

For *Index of Materials* see pp. 546–8.

A

Abbotabád, 407, 690.
Ábu, 160, 118.
Ábrang Kóma, 449, 432.
Adam's peak, *see* Sripáda.
Adhvanidrúg, *H.S.*, 224, 169.
Ádi, 157, 94.
Adóni, *see* Adhvanidrúg.
Aghámba, *H.S.*, 208, 39.
Agír river, 404, 676.
Aglár river, 361, 344.
Ágra, 117, 30; 201, 372.
Ahartatópa peak, 396, 618.
Ahmadnágger, 217, 107.
Áhmadpur, 159, 109.
Áiju, 387, 537.
Ákpa, 411, 733.
Akbárpur, *T.S.* and village, 120, 51; 468, 63.
Akístepur, *T.S.*, 106, 38.
Aknúr, 401, 651.
Ákloa, 190, 269.
Ákra, *T.S.*, 153, 63.
Akrakóti, *see* Karatkóti.
Aksáe Chin, 425, 18.
Áku peaks, 301, 223-4.
Alaknánda river, 331, 138; 334, 159; 335, 164, 167; 339, 184, 185; 353, 271, 273.
Alchamapát ghát, 230, 216.
Álgi, *H.S.*, 163, 19.
Aliabád, village and pass, 401, 654.
Alígarh, 117, 31.
Alimáli Mat, 466, 250.
Alinagger, 230, 214.
Allahabád, 164, 24.
Allassúr, *H.S.*, 242, 75.
Allavalpadi ghát, 237, 30.
Almóra, 326, 112.
Alrakakhán mount., 328, 116.
Alsúnda hill, 219, 117.
Amarkántak, 185, 223.
Amartál, 271, 9.
Ambába, 163, 18.
Ambála, 158, 103.
Ambangánga, 251, 158.
Ambarnáth peak, 396, 614.
Ambúr, 237, 22.
Amjhóri, *H.S.*, 188, 241.
△ Ámlung, 430, 43.
Ámoli, *T.S.*, 130, 158.
Ámrapur, 222, 149.
Amraváti, 190, 267.
Ámua, *H.* & *T.S.*, 136, 212; 173, 119.
Ámui, 166, 44.
Anantaghérri, *H.S.*, 199, 351.
Ánapur, 218, 113.
Ándal, 107, 49.
Andhiári, *H.S.*, 168, 62.
Ándli, 216, 95.
Andrár peak, 390, 563.
△ Ángkhang, 443, 126.
Ángregi, 221, 136.
Antapurám, 223, 156.
Ántri, village and pass, 162 7; 201, 372.
Ánugpur, 181, 194.
Appiapílli, 229, 206.
Arh, 194, 306.
Arkaváti river, 243, 90.
Árkot, 234, 10.
Árrah, 133, 190.
Arrakarái, 224, 166.
Arsándi, 224, 162.
Árug, 218, 109.
Ásapur, 389, 551.
Áshta, 182, 200; 201, 372.
Áshti, 196, 329.
Áskoli, Lower, 462, 229.
Askót, 312, 22.
Asofnágger fall, 255, 304.
Asógapur, *T.S.*, 128, 134.
Asráfpur, *T.S.*, 128, 136.

Assirgárh, 191, 271.
Assíri, 202, 1.
Astór, *see* Hasóra.
Ásu, *T.S.*, 126, 114.
Ásu Chúla, 313, 33.
Átak, 146, 3.
Ataría, *T.S.*, 123, 80.
Athgáth, *T.S.*, 120, 55.
Atóra, *T.S.*, 120, 50.
Átsu, *T.S.*, 122, 70.
Attampéttia, 250, 148.
Áttock, *see* Átak.
Áunda, 194, 309.
Áur pass and village, 361, 325.
Aurangabád, 194, 302.
Áyar Páttah peak, 330, 131.

B

Bábai peak, 156, 85.
Babáuri mountain, 387, 526.
Bábule, 251, 153.
Bádam pahár, *H.S.*, 187, 239.
Badámi, 221, 137.
Badángărh, 330, 135.
Badárpur, 115, 11.
Bádhan Dhúa mountain, 334, 160.
Bádrinath, 335, 165.
Bádrinath peak, 337, 179.
Bádshah Mahál, 371, 404.
Bádul, 378, 462.
Bádula, 250, 149.
Badvár, 171, 102; 201, 372.
Baflún hill, 191, 275.
△ Băgdoár, 322, 80.
Băgdoár peak, *see* Hásaling.
Bágesar, 324, 89.
Bágha Ling, *see* Bhága Ling.
Bágla hill, 401, 651.
Bagmúri, *H.S.*, 139, 247.
Bágra, 377, 456.
Bagvára, *T.S.*, 122, 69.
Bahadurgárh, 385, 512.
Bahádur Khēl, 151, 38.
Baharináth, 105, 31.
Báhi, 390, 560.
Báhin Dárra, 156, 86.
Bahósi bridge, 255, 318.
Báila, 369, 387.
Bailípi, *H.S.*, 225, 171.
Báilra fall, 255, 306.
Báinsa, 178, 166.
Bainthári, 311, 17.
Báirat mountain, 366, 363.
Báirong, 111, 79.
Baisáni, 326, 105.
Báisi, *T.S.*, 143, 281.
Baisvára, 232, 234.
Báitart mountain, 412, 737.
Báitul, 188, 242.
Bajvára, *T.S.*, 256, 131.
△ Bákri, 354, 275.
Báksa Duár, *see* Pusákha.
Báksar, 132, 174.
Bákva, *T.S.*, 132, 177.
Balábgărh, 115, 12.
Balándpur, *T.S.*, 127, 127.
Balasún river, 287, 145.
Baláuri, 215, 85; 216, 94.
Balbapílli, 231, 222.
△ Balchán, 354, 275.
Balchétti, 234, 7.
Baléshvar, 195, 320.
Balgánga river, 349, 245.
Bálki, *T.S.*, 105, 32.
Balkót, 335, 166.
Ballalaidrúg, *H.S.*, 220, 129.
Ballamálli, *H.S.*, 248, 141.
Ballangódde, 252, 166.
Ballári, 223, 160.
Bállúr, 224, 163.
Bálpur, 107, 49.
Balrámpur ghāt, 179, 175.
Balsútti river, 335, 167.
Báltal, 395, 610.
Báltal peak, 396, 619.
Bálung, 351, 263.
Bamanvála, 364, 349.
Bámba, *H.S.*, 172, 106.
Bambhóra Gărh, 368, 376.
Bámini, 179, 176.
Bamóri, 334, 157.
Bámsuru pass, 354, 278.
Banádi, *T.S.*, 142, 277.
Banaganpílli, 228, 201.
Banássa, 357, 296.
Bánchu, 328, 121.
Bandáni mountain, 326, 106.
Bándari, *H.S.*, 141, 264.
Bánderpúch peak, 354, 277.
Bandhálli, *H.S.*, 243, 89.
Banérd, 386, 516.
Bángahal mount., *see* Bánghal.
Bánghal mountain, 387, 528.
Bangalár, 242, 82.
Bangánga river, 392, 581.
Banghóra, *T.S.*, 143, 291.
Bángla pass, 151, 42.
Bángla Sar peak, 151, 42.
Báni, *T.S.*, 153, 59.
Bánku mountain, 312, 26.
Bannock burn, 120, 284.
Bansgopál, *T.S.*, 120, 45.
Banóg hill, 365, 351.
Banóg Observatory, 365, 350.
Banrári, 347, 232.
Banskópa, 107, 49.
Bapdéo ghāt, 210, 51.
Bára, 135, 200.
Bára Bánghal, 388, 538.
Baramgálla, 402, 659.
Barabáti peaks, 358, 304-5.
Barábar, *H.S.*, 135, 202.
Bára Bragdái, 150, 28.
Baragái, *H.S.*, 138, 228.
Baragárh mountain, 380, 477.
Baragáŭ, *T.S.* 120, 54.
Bára Lácha pass, 373, 428.
Baramúla 403, 662.
Bárang, *see* Bruáng.
Barapúr bridge, 255, 319.
Barára, *T.S.*, 143, 286.
Barári, *T.S.*, 139, 243; 143, 282.
Barásu, 345, 215.
Barathór peaks, 304, 243-5.
Baráuli, *T.S.*, 121, 58; 127, 128.
Bărdván, 105, 35; 107, 49.
Barél range, 108, 59.
Baréli, 122, 72.
Barér, *see* Bharér.
△ Barfónchen, 275, 48.
Bárhi, 137, 221.
Bári, *H.S.*, 141, 266.
Barikánda mountain, 365, 358.
Bărkót, 359, 312; 405, 682.
Bárma Sákul peak, 390, 644.
Baról, 172, 111.
△ Baról Brog, 457, 203.
Băr Pahár, 271, 11.
Bársam, *T.S.*, 140, 256.
Bárui Chára, 333, 150.
Barún, 132, 178.
Barúr hill, 203, 4.
Bárva Ságar, 164, 25.
Barvárni, 389, 554.
Básantpur, *T.S.*, 130, 162.
△ Bashmalgún, 452, 181.
Bassím, 192, 288.
Báspa peaks, 355, 280-4.
Báspa river, 352, 268; 413, 740.
Bássu Tára, hot spring, 355, 286.
Batmángalam, 238, 31.
Batváya, *T.S.*, 134, 196.
Bazóti peak, 147, 8.
Bē, 433, 56.
Beechwood park, 284, 120.
Begóya, *T.S.*, 134, 192.
Behéri, *T.S.*, 123, 84.
Békhar, 435, 61.
Béla, 130, 154; 134, 199.
Bēlgálli, 219, 122.
Belgáŭ, 216, 96.
Bélha, *T.S.*, 141, 262.
Belkápi, 138, 236.
Belkhári, 183, 204.
Bellári, *see* Ballári.
Bellevue hill, 363, 340.
Bellungálle, 249, 142.

Belville, 115, 15.
Benáres, 131, 169.
Benténne, 252, 159.
Beohári, 173, 115.
Bépho glacier, 462, 229.
Bépho river, 462, 229.
Béra ghāt, 181, 191.
Bermhán, 182, 198.
Bétta Dapúr, *H.S.*, 247, 126.
Bevoibétta peak, 246, 113.
Bhabéh pass, *see* Tári pass.
Bhadráj, 366, 360.
Bhága Ling, 313, 32.
Bhágalpur, 107, 49; 142, 280.
Bhagiráthi river, 343, 208; 344, 213; 348, 239; 350, 246; 353, 271; 354, 275; 356, 288.
Bhagiráthi peak, 344, 214.
Bhágsu, 391, 577.
Bhágvapur peak, 131, 171.
Bharáta, *T.S.*, 142, 274.
Bharér hills, 178, 168.
△ Bháiro Ghāti, 348, 239.
Bhária Bisánpur, *T.S.*, 140, 250.
Bhártpur, *T.S.*, 138, 230.
Bharách, 188, 249; 201, 372.
Bhatáuli, *T.S.*, 120, 56.
Bhatkót mountain, 330, 136.
Bháulpur, 158, 108.
Bhau Mállang hill, 204, 13.
△ Bhaviti, 430, 45.
Bhéti, 293, 169.
Bhiládi, 347, 233.
Bhilavára, 189, 257.
Bhíllung river, 356, 288.
Bhíllung, 351, 260.
Bhílsa, 177, 159; 201, 372.
Bhíma river, 206, 31; 211, 58; 215, 86.
Bhíma Sánkar, 206, 31.
Bhimpédi, 303, 235.
Bhind, *T.S.*, 121, 62.
Bhíri, 395, 607.
Bhitári, *H.S.*, 164, 20.
Bhiúri, 210, 54.
Bhólu fall, 255, 310.
Bholéshvar, 214, 78.
Bhomsóng, 279, 84.
Bhómtso peak, 276, 55.
Bhopál, 180, 183; 201, 372.
Bhōr ghāt, 205, 20.
Bhoráj, *H.S.*, 166, 48.
Bhósleh mountain, 414, 748.
Bhovargárh, 193, 291.
Bhūj, 160, 121.
Bhurs mountain, 380, 476.
Bhútra hill 206, 27.
Biáns Rikhi peak, 306, 264.
Biás river, 378, 462; 381, 482; 384, 507; 389, 550; 391, 576; 392, 587.
Bibberi, 196, 322.
Bíchia Koh, 304, 239.
Bídadi, *see* Bírdi.
Bídar, 197, 339.
Biérva, *T.S.*, 133, 188.
Bíhia, 107, 49.
Bihísht, 378, 467.
Bíjli mountain, 379, 470.
Bijnáth, 328, 120; 388, 547.
Bikáiri, 174, 127.
△ Bi ka Udár, 355, 285.
Biláspur, 387, 530.
Bilkhét pass, 324, 89.
Bilkhét, 351, 256.
△ Bim Góra, 343, 212.
Bimtál lake, 330, 132.
Bínsa, *see* Báinsa.
Bínsar mountain, 325, 101.
Binsoár, 351, 257.
Biraldíni, 222, 146.
Birch hill, 284, 126.
Bírdi, 243, 87.
Birimdéo, 314, 43.
Birm Kánta pass, 434, 59.
Bíránd mountain, 325, 102.
Biróna, *T.S.*, 122, 71.
Birót, 405, 682.
Bisangárh, *T.S.*, 123, 75.
△ Bitarguár, 321, 74.
Bítteli, 182, 196.
Black Rock peak, *see* Guareám.
Blingbóng, 280, 87.
Bodimálla, *H.S.*, 230, 215.
Bogagáu, 271, 8.
Bóga páni river, 112, 86.
Boigálla, 223, 157.
△ Bok, 450, 166.
Bóko La pass, 421, 6.
Bóla, *T.S.*, 106, 42.
Bolpál, *H.S.*, 189, 260.
Bomanélli, *H.S.*, 247, 121.
Bomasándram, *H.S.*, 226, 181.
Bombay, 202, 3.
Bomóri, 165, 34.
Bóndar, 183, 210.
Boníti Dévi, 376, 451.
Bonnargótta, *H.S.*, 242, 81.
Bonóld river, 359, 315.
Boragárh, 107, 49.
Bóri hill, 219, 119.
Bóri and Noh Dihíng separation, 102, 4.
Bor páni river, 110, 74.
Bóri páni river, 112, 83.
Bóvan, 341, 200.
Braháldo river 465, 242.
Brahmapútra river, 102, 5, 9; 103, 11.
Brírna peaks, 452, 173-8.
Broach, *see* Bharúch.
Bruáng, 412, 740.
△ Brúmi Ráma, 457, 203.
Bryn Guiyn 284, 120.
Buáli Kánta pass, 348, 238.
Budaladrúg peak, 243, 86.
Búdara, 314, 48.
Búdhon, *H.S.*, 172, 112
Búdi Pind, 256, 128.
Búdna, *H.S.*, 138, 233
Bugdár ghāt, 364, 343.
Bugargúda, *H.S.*, 247, 128.
Bújan, 332, 145.
Búkim, 285, 127.
Bulákipur, *T.S.*, 137, 225.
Búlbul, *H.S.*, 176, 148.
Buleássa, 403, 668.
Bulfái, 272, 16.
△ Búlla La, 434, 60
△ Búllu, 454, 191.
△ Bulzáu Áthel, 467, 253.
Bumdangtáng, 272, 23.
Búnga mountain, 384, 503.
Buránda, 362, 333.
Burárida peak, 362, 331.
Buránsi mountain, 339, 186.
Búrva, 169, 75.
Búrze La pass, 465, 245.
Búsa, 188, 246.
Búson glacier, 450, 166.
Búshia, 452, 180.

C.

Calcutta, 106, 47.
Cawnpore, *see* Kánhpur.
Castle Rock peak, 412, 732-3.
Colinton, 284, 120.
Chábrang, 433, 57; 437, 84.
Chabutrahátti mountain, 387, 527.
△ Chadartásh, 455, 191.
Chāháuia, 157, 97.
Cháia, glacier & pass, 352, 267.
Cháinpur, *H.S.*, 139, 239.
Cháisele mountain, *see* Chángsil.
Chajút peak, 146, 4.
Chákan 209, 47.
Cháko La pass, 421, 4.
Chākótri, 403, 665.
Chákoval, 152, 50.
△ Chákung, 277, 60.
△ Chála, 374, 428.

Chála river, 374, 428.
Chamalhári peak 273, 32.
△ Chamanáko, 275, 44..
Chámba, 357, 295; 387, 535; 407, 691.
Chámbal river, 116, 25; 117, 25; 183, 205; 201, 372.
Chambargúnda, 217, 101.
△ Chamchúe, 376, 449.
Chámki, *H.S.*, 177, 153.
Chamláng peak, 297, 199, 201.
Chámpa Dévi, 301, 219.
Champavát, 313, 40.
Chánda, 193, 299.
Chandánpur, *T.S*, 119, 35; 124, 88.
Chándari, 204, 17.
Chandarnagúr, 106, 41; 107, 491.
Chandarsenpúr, *T.S.*, 139, 241.
Chandasúr, 197, 335.
Chándi hill, 360, 321.
Chándla, *H.S.*, 168, 70.
Chándpur, 177, 154.
Chándpur mountain, 370, 397.
Chándra Badáni mountain, 352, 266.
Chandragíri pass, 302, 226.
Chandragíri ridge, 302, 226.
Chandrahantílla mountain 389, 557.
Chándu Nángi mountain, 289, 158.
Chandúr, 192, 284.
Chandvár, *H.S.*, 137, 222.
Changachélling, 287, 146.
Changchénmo pass, 424, 10.
Changokháng peak, 276, 57.
Changsákha peak, 354, 279.
△ Changseldár, 321, 74.
Chángrang pass, 411, 724.
Chángsil mountain, 365, 354.
Changtábu mountain, 288, 151.
Cháni, *T.S.*, 143, 285.
Chap, 408, 701.
Chápra, 187, 232.
Chápra, *T.S.*, 138, 229.
Chápri, *H.S.*, 170, 93.
Charalékh, 307, 269.
Chárang peaks, 410, 713-14.
Chári mountain, 313, 31.
Chárparan, 136, 214.
Cháteng, 279, 80.
Chathardhár peaks, 394, 603-4.
Cháti, 116, 19.
Chátta, 115, 16.
△ Cháttakpur, 282, 113.
Cháttar mountain, 393, 596.
Chaubíssi peak, 306, 262.
Chaudáns peaks, 311, 20-1.
Cháudri, 159, 110.
Chaukúnda, 328, 117.
Chaunún, 334, 161.
Cháuras, 366, 361.
Chaúsla, 337, 176.
Cheadám, 280, 89.
Chéla, 112, 86.
Chelragúrki, 224, 165.
Chélua, *T.S.*, 129, 150.
Chérevan, 398, 631.
△ Cheritór, 463, 234.
Chéro peaks, 388, 541-2.
Chérong pass, *see* Birm Kánta.
Chérra Púnji, 110, 78.
Chéru mountain, 380, 479.
Chétkul, 352, 268.
Chétkul peaks, 350, 247-51.
△ Chiáma Gígi, 343, 211.
Chíblen peak, 421, 5.
Chíbra, 455, 193.
Chicháli pass, 153, 58.
Chíddi pass, 290, 160.
Chíderu, 155, 82.
Chíjera mountain, 376, 447.
Chikár, 404, 676.
△ Childing, 348, 239.
Chílding Kóna pass, 410, 719.
Chilgáne plateau, 454, 190.
Chíllong peak, 109, 69.
△ Chim, 317, 64.
Chímar, 219, 121.
Chimrát peak, 386, 524.
△ Chímpula, 352, 267.
Chináb river, 401, 651.
Chinapatám, 244, 95.
Chinár, 398, 637.
Chíndu pass, *see* Níti ghát.
Chíner peak and pass, 331, 140.
△ Chingchingbár, 375, 438.
Chingopámarí mountain, *see* Gaurisánkar.
Chíni, 412, 736.
Chinúr, 229, 208.
Chíntam, 296, 189.
Chípala peak, 311, 16.
Chirbítta Dhúra pass, *see* Mána ghát.
Chirgáñ, 367, 370.
Chíria ghát, 303, 238.
△ Chíring, 445, 1[illegible].
Chisapáni, 303, 234.
Chitáura fall, 255, 308.
Chitkál, *H.S.*, 244, 93.
Chitlóng, 302, 229.
Chittagóng, 106, 48.
Chitiráun mountain, 375, 442.
Chíttra river, 227, 193, 195.
Chittúr, 236, 14.
Chitvára, 184, 212.
△ Cho Cho Chúmik, 465, 244.
Chogospáng glacier, 457, 203.
Chóia peak, 154, 66.
Chóia Sáidan Shah, 153, 66.
Chók, 204, 16.
Chóki, 182, 199.
Choki Shue mút tho phya, 13, 90.
Chóla mountain, 274, 41.
Cholámu lake, 275, 43.
Chómo-la mountain, 270, 6.
Chónda, 117, 29.
△ Chóngil Dáne Áksc, 453, 187.
△ Chongtásh, 453, 187.
Chongtóng Chóki, 286, 136.
Chónpong, 285, 126.
Chórbad Lúngpa river, 458, 208.
Chórbad pass, 458, 209.
Chorkónda, 461, 227.
Chorkónda glacier, 462, 228.
Chóla pass, 274, 40.
Chomiomó peak, 279, 82.
Chóra peak, 273, 33.
Chóta Bálapur, 240, 61.
Chóta Orampód, 230, 219.
Chóta Shettipílli, 228, 204.
Chuási, 372, 421.
△ Chu Biánga, 465, 242.
△ Chu Biár, 428, 27.
Chúkam, 340, 193.
Chunapáni, 314, 50.
Chúnda, 156, 90.
Chúngtam, 277, 61.
Chunjérma pass, 293, 167.
Chúpcha, 273, 31.
Chúr peak, 373, 423.
Chúru mountain, 397, 622.
Chúrun, hot spring, 456, 196.
Chúshul, 442, 118.
Chutrón, 466, 249.
Chutrón, hot spring, 463, 233.

D

Da, 451, 172.
Dábling, 408, 700.
Dacca, *see* Dháka.
Dádar, *H.S.*, 168, 71.
Dágoni, 459, 213.
Dágri, *H.S.*, 166, 46.
Dágshái, 382, 489.
Daibúng peak, 299, 210.
Dáila mountain, 345, 217.
Daisanigúda, 222, 145.
Dákri pass, 325, 94.
Dal, 156, 88.
Dalenág, *T.S.*, 127, 124.
Dálipur, *H.S.*, 170, 88.
Dálma, *H.S.*, 140, 254.
Dámal, 221, 139.

△ Damár, 444, 132.
Damargída, *H.S.*, 197, 337.
Dambáro peak, 149, 27.
Dámbul, 252, 161.
Damdár pass, 353, 275.
Damdár peaks, 352, 269-70.
Dámo, 174, 129.
Dámpuk, 286, 134.
Danayakhán Kotái, 244, 97.
Dangdángsi peak 357, 300.
Danghái, 134, 198.
Danghót peak. 152, 55.
△ Dangmóche, 372, 422; 376, 449.
Dánkhar, 437, 83.
Dánna, 405, 680.
Dánna Nólla peak, 327, 112.
Dánna pass, 405, 680.
△ Dánse, 448, 150.
Dánva, 136, 209.
Dápla Bũm peak, 101, 2.
Dápsang peak, 427, 22.
Dápsang plateau, 426, 20.
Dárche, 381, 486.
Dargáva, *H.S.*, 168, 68.
Dargúg, 443, 131.
Dáriapur, *H.S.*, 163, 14.
Darjíling, 283, 120.
Darót mountain, 393, 595.
Darúr, *H.S.*, 227, 191.
Das, 467, 254.
Daskérim river, 466, 251.
Dásna fall, 253, 311.
Dastótte, 251, 158.
Dàsúya, 256, 126.
Datiári, *H.S.*, 165, 33.
Dátmir, 359, 311.
Daulatabád, 193, 297.
△ Dáulat Beg Úlde, 426, 20.
Daulésḥvar, *see* Dholéshvar.
Dáuli river, 331, 138.
Daundáj. 213, 71.
Daurára, *T.S.*, 128. 137.
Davanhálli, 241, 64.
Davaroidrúg, *H.S.*, 244, 96.
Dávar, 399, 647.
Davarbétta peak, 245, 107.
Davarkónda, *H.S.*, 226, 188.
Davarsolabétta peak, 246, 115.
Déba, 345, 218.
Dèhli, 115, 10.
△ Déngha, 278, 75.
Déo Dhúra, 322, 78.
Deolapár, 189, 255.
Deóli pass, 327, 112.
Déo Pátta peak, 331, 140.
Deopreág, 353, 271.
Deóra, 172, 107.
Deóri, 178, 170.
Deosái plateau, 466, 250.
Déo Tal glacier lake, 338, 180.
Deotíba peak, 374, 432.
Depái, *T.S.*, 135, 203.
Déra, 364, 348.
Déri, 132, 173, 176.
Déri peak, 132, 173.
Deriála peak, 153, 61.
Dervarsán, *T.S.*, 125, 103.
Deúr, 212, 66.
Devál, 388, 540.
Devalikhál pass, 337, 175.
Devangánj, *T.S.*, 142, 279.
Devangíri, 272, 18.
Devankhána, 381, 482.
Devidhár, 386, 522.
Dhăj mountain, 312, 23.
Dháka, town and *T.S.*, 105, 30; 124, 91.
Dhalíp Gárh, 152, 54.
Dhankáuri, 209, 45.
Dhandkúra, *H.S.*, 167, 53.
Dhánpur, 340, 197.
△ Dhanráu, 337, 173.
Dhánsi peak, 315, 54.
Dhăr, 186, 229; 201, 372.
Dharamsála, 391, 573; 402, 657.
Dhargára, 314, 42.
Dharkána, *H.S.*, 170, 87.
Dharvâr, 219, 118.
Dhavalagíri, 305, 252.
Dhékalu, 339, 190.
Dhóbi, 179, 181.
Dhoivála mountain, 364, 347.
Dholagíri, *see* Dhavalagíri.
△ Dhólep Láchen, 278, 69.
Dholéshvar, 213, 70.
Dhólpur, 116, 25.
Dhongáũ, 193, 294.
Dhónja, 208, 41.
Dhórup, 192, 281.
Dhuán mountain, 341, 201.
Dhvára Hath, 332, 146.
Di, *see* Déo Dhúra.
Diabétme, 253, 169.
Diámar peak, 428, 26.
Diapípar ghăt, 179, 178.
Díbar, *H.S.*, 168, 64.
Dibrugárh, 113, 92.
Didium peak, 397, 629.
△ Dig Dar, 356, 289.
Díghi hill, 210, 52.
Dihár, 386, 519.
Díkiling, 277, 65.
Djlakás, *T.S.*, 108, 44.
Diljábba peak, 152, 51.
Dílli mountain, 248, 140.
Dindigál, 239, 46.
Dinghót peak, 152, 52.
Díndur, 221, 142.
Dingathár, 315, 56.
△ Dira, 433, 55.
Dískit, 456, 197.
Dobáuli, *T.S.*, 136, 217.
Dóda, 174, 124.
Dodabétta peak, 246, 112.
Dodagúnta, *H.S.*, 241, 71.
Dódur, *see* Dóda.
Dógri peak, 362, 334.
△ Do Hámdo, 354, 275.
Dõl, 325, 100.
Doltakhúng peak, 446, 142.
△ Donáru, 459, 215.
Donáu, *T.S.*, 124, 94.
△ Dondóng, 461, 228.
△ Dóngan, 442, 123.
Dónkia pass, 274, 42.
Dónkia peak, *see* Pauhánri.
Dónri, *H.S.*, 166, 42.
△ Dóra, 432, 53.
Doráli, 216, 98.
Dorikón pass, 467, 257.
Dránkhar, *see* Dánkhar.
Dras, 464, 239.
Dras peak, 464, 236.
Dras river, 463, 232.
△ Dreh Bákho, 463, 234.
Drísha, 456, 196.
Dúbdi, 285, 130.
Dubhái, 187, 237; 201, 372.
Dúda, 363, 341.
Dudálla, *H.S.*, 197, 338.
Dúdhili mountain, 365, 352.
Dúdoli, 194, 305.
Dúlla, 256, 123.
△ Dúlla Súmdo, *see* Gyúngul.
Dumdángi, *T.S.*, 103, 15.
Dúmri, *T.S.*, and town, 132, 180; 139, 242.
△ Dumúrtar, 461, 226.
Dúna Biási pass, 302, 229.
Dúna Giri, 332, 143.
Dungărlgáũ, 205, 25.
Dũp pass, 406, 684.
Dúpa peak, 147, 12.
Dũr, 317, 63.
Durabétta, *H.S.*, 241, 70.
Duravál, *T.S.*, 126, 115.
Dúrgapur, *H.S.*, 142, 275.
Durhéshvar, 195, 317.
Dútran, 414, 746.
△ Dváli, 323, 83.

E

Eagle's Nest hill, 363, 340.
East Indian Railway, levels of, 107, 49.
Edge hill, 363, 340.
Élchi, 469, 264.
Élchi Daván pass, 424, 13.
Élchi pass glacier, lower end of, 425, 13.
Élchi river, 452, 180.
Ellóra, *see* Elúra.
Elúr, 200, 369.
Elúra, 193, 295.
Emelía, 181, 195.
Érki, 383, 499.
Évra, *T.S.*, 127, 126.

F

Fadóng, 278, 67.
Fágu, 375, 441.
Fáldt peak, 291, 165.
Fáridnágger, 116, 18.
Fárrukhabád, *see* Fátihgárh.
Fátihgánj, *T.S.*, 121, 66.
Fátihgárh, 124, 85.
Fátihgárh branch, 255, 307.
Fátihnágger, *T.S.*, 128, 129.
Fátihpur, 128, 132.
Fórra, 116, 23.
Fiöngúng, 275, 49.
Fírfing, 299, 213.
Firozabád, *T.S.*, 42; 119, 38.
Firózpur, 158, 100.
Fitkúri, 140, 258.
Forked Dónkia peak, 274, 37.
Fort Moira, 327, 112.
Fulshók mountain, 299, 211.
Funnel hill, 203, 10.

G

Gáddakalgúda, *H.S.*, 224, 167.
Gádjántargárh, 222, 143.
△ Gáhópp, 343, 211.
Gáira, 141, 265.
Gájlhálli, 244, 99.
Gái ghat, 132, 175.
Gáichan, 362, 332.
Gajnéra, *T.S.*, 124, 86.
Gámbar mountain, 391, 578.
Gambargárh, *H.S.*, 193, 293.
Gámpola, 249, 143.
Gamsáli, 324, 92.
Gananáth, 328, 119.
Gandáspur, *T.S.*, 123, 83.
Gángani páni spring, 359, 309.
Gangankót, 329, 129.
Ganges river, 124, 85; 126, 106; 132, 174; 358, 306; 360, 322.
Gángi, 348, 238.
Gangodegámme, 252, 165.
Gangótri, 346, 223.
△ Gángtok Sampú, 277, 66.
Gánjua, *T.S.*, 106, 39.
Gannarám, 232, 235.
Gáno, 178, 173.
Ganót, 115, 7.
Gántvárpílli, 227, 195.
Gánu, 468, 259.
Gáphan peak, 377, 455.
Garaldíni, 228, 198.
Gárbia, 310, 1.
Gárh, 166, 45.
Gárhdivála, 256, 127.
Garhagárh mountain, 397, 627.
Gárhia, 174, 131.
Gárhi Havibúlla, 406, 687.
Gárjok peak, 154, 67.
Garrakóta, 175, 137.
Gárreho, 171, 101.
Gárria, 177, 158.
Gártok, 431, 47.
Gatiár mountain, 378, 461.
Gátpárba, 219, 125; 220, 130, 131; 221, 134.
Gáura, *T.S.* and village, 123, 79; 369, 392.
Gaurikúnd, 342, 206.
Gauripátnam, 200, 362.
Gáuri peak, 386, 520.
Gaurisánkar, 297, 200.
Gavilgárh, 189, 259.
Gázzelhálli, *see* Gájlhálli.
Génru páni, 344, 212.
Ghágar pass, 330, 133.
Ghágra river, *see* Sárju.
Ghamén mountain, 370, 400.
Ghandiál mountain, 356, 293.
Gharánda, 114, 2.
Gháts, principal, of India and High Asia, 492.
Gházipur, 131, 170.
Ghíba, *T.S.*, 143, 288.
Ghontvál, 191, 276.
Ghóra, 163, 11.
Ghoravál, 167, 55.
Ghúnti mountain, 346, 230.
Ghúsa peak, 386, 515.
Giants' peak, *see* Dal-La.
Gillemálle, 252, 167.
Ging, 284, 120.
Gipmóchi peak, 273, 35.
Giráuli peak, 376, 445.
Giri river, 370, 396.
Girjvála mountain, 350, 252.
Girór bridge, 255, 323.
Girórli, 188, 248.
Girvár, 169, 76.
Giunáli, 349, 245.
Glacier lakes, *see* Lakes.
Glaciers, lower end of, 275, 50; 279, 83; 317, 64; 319, 68; 321, 74; 322, 79; 341, 202; 352, 267; 353, 275; 355, 287; 371, 406; 376, 449; 385, 514; 395, 610; 425, 13; 428, 27, 29; 429, 33; 433, 58; 450, 166; 457, 203; 461, 226; 462, 229, 230; 463, 234.
Góa, *T.S.*, 150, 37.
Góbesar, 338, 183.
Góbra, *H.S.*, 176, 149.
Gódar Deóta, 368, 380.
Godávari river, 191, 273; 192, 299; 196, 325, 326, 328; 199, 355.
Gódna, *T.S.*, 116, 24.
Gogipátri mountain, 401, 650.
Gohátti, 103, 11.
Góhuli, *H.S.*, 165, 31.
Gokalpára, *T.S.*, 163, 13.
Gól Lekh mountain, 307, 270.
Góla, 183, 209.
Góla, 201, 372.
Goládpur, 183, 205.
Golághi, 310, 3.
Góldar, 359, 315.
Gólla, 224, 168.
Góltere, 467, 256.
△ Gomúkh, 313, 208.
Gopalsvámi, *H.S.*, 240, 58.
Góra, 201, 372.
Goraigát, *H.S.*, 198, 344.
Gorákhpur, 184, 214; 254, 298.
Goralótnu peak, 384, 506.
Gorás peak, 360, 320.
Gorh, 280, 86.
Góri river, 315, 57; 316, 61; 318, 67; 319, 67; 322, 80.

Gorigáũ, 214, 83.
Gosáuth, *T.S.*, 136, 213.
Gracemount, 363, 340.
Grain cultivation, upper limit of, 333, 154; 382, 491; 449, 161, 162; 452, 180; 457, 201; 500–1.
Grámang, 410, 711; 414, 747.
Grass vegetation, upper limit of, 317, 62; 320, 72; 374, 428; 454, 190, 191.
Great Rángít river, 282, 110; 283, 114, 116; 286, 135.
Green Mount, 363, 340.
Guareám, 275, 45.
Gudargánvan, *T.S.*, 140, 251.
Gúe pass, 468, 260.
△ Gúfa Udár, 351, 261.
Gúgor, 175, 135.
Gujranvála, 157, 93.
Gujrát, 155, 83.
Gulabgárh, 446, 140.
Gúla ghát peak, *see* Golághi.
△ Gulbagashén, 453, 186.
Gúma, 385, 513.
Gúmba ghát, 183, 208.
Gunás pass, 361, 327.
Gundeát, 360, 319.
Gundeát pass, 360, 319.
Gúndla, 381, 481.
Gundukál, 225, 179.
Gung ridge, 287, 144.
Gúnka river, 316, 58; 319, 67.
Gunshankár peak, 421, 3.
△ Guonám, *see* △ Sonám.
Gũr river, 215, 87.
Gurbán, 160, 117.
Gurgabúru, *H.S.*, 140, 249.
Gurgáũ, 254, 295.
Gurgurlót peak, 149, 21.
Gúri, *T.S.*, 123, 78.
Gúri river, *see* Góri.
Gurkhyám, 441, 116.
Gúrla peak, 420, 1.
Gurdhár peaks, 388, 543-4.
Guriáli pass, 356, 294.
Gúrmi, *T.S.*, 119, 44.
△ Gurmó, 355, 285.
Gurváni, *H.S.*, 173, 117.
Guskára, 107, 49.
Gúti, 226, 189.
Guzerkhán, 150, 30.
Gválior, 162, 3.
Gvashbrári peak, *see* Báltal.
Gyá, 447, 147.
Gyá peak, 437, 77.
Gyálzering Mat, 466, 251.
△ Gyám, 444, 133.
△ Gyúngul, 431, 50.
Gyúngul river, 431, 50.

H

Haboréna, 252, 160.
Hágri river, 224, 163, 164.
Hajipír, 403, 667.
Hájipur, 394, 599.
Hájuru mountain, 380, 472.
Haldáur, *T.S.*, 119, 33.
Háldi, 457, 202.
Haldváni, 333, 152.
Hálkúndi, 224, 161.
Hallabágh, 445, 138.
Hamírpur, 125, 102.
Hampságar, 222, 144.
Hándia, *H.S.*, 137, 220.
Handiáli, 156, 91.
Hángi river, 216, 92.
Hángo, 409, 708.
Hángrang pass, 409, 709.
Hánle, 440, 109.
Hánle peak, 440, 106.
Hánle Tso lake, 441, 111.
Hannabétta, *H.S.*, 248, 135.
Hanotílla mountain, 389, 552.
Hansitílla mountain, *see* Hanotílla.
Hant mountain, 468, 263.
Hanumána, 167, 54.
Hánu Yógma, 450, 433.
Harámúk peak, 398, 632.
Hardvár, 360, 322.
Hariáni, *H.S.*, 256, 129.
Harichandragárh, 209, 43.
Harigáõ hill, 113, 88.
Harínli, 343, 210.
Háripur, 367, 372; 393, 589.
Harmándar, 397, 628.
Hárna kúri ghát, 131, 172.
Harpaliséd mountain, 354, 276.
Hárpu river, 357, 297.
Hárpur, *T.S.*, 142, 276.
Harrankhól, 107, 49.
Hársung peak, 437, 82.
Hartól pass, 315, 53.
Hásaling peak, 316, 59.
Hasóra, 468, 258.
Hasóra river, 468, 258.
Hássan Ábdul, 146, 6.
Hássanpur peak, 132, 173.
Háthi, 405, 677.
Hathián, 405, 678.
Hat ka Záũra pass, *see* Damdár.
Háti, 167, 59.
Háti Dhár, 393, 593.
Hatipám hill, 363, 340.
Hátipur mountain, 382, 490.
Hátta, 172, 108.
Háttu mountain, 372, 416.
Háuri, *H.S.*, 172, 105.
Havalbágh, 327, 114.
Havídi, *T.S.*, 140, 252.
Haycock hill, *see* Himidún.
Hazaribágh, 137, 219.
Hetáunda, 303, 237.
Héttu, 157, 95.
Hevánga La pass, *see* Súru.
Hi pass, 285, 131.
Hílji, *T.S.*, 128, 131.
Híllung, 332, 147.
Himákoli springs, 291, 164.
Himánpur, *T.S.*, 138, 235.
Himbab peaks, 465, 246-8.
Himbiativélli, 250, 147.
Himidún hill, 252, 164.
Himilía, *H.S.*, 175, 138.
Hímis, 446, 144.
Hináuta, 171, 99.
Hingengáũ, 215, 84.
Hingenghát, 191, 273.
Híngoli, 194, 307.
Híon, *T.S.*, 256, 132.
Hiraháll, 223, 159.
Hokalbétta peak, 245, 110.
Homsvashendrúg, *see* Boigálla.
Honúr, 224, 164.
Hóresa, *T.S.*, 129, 151.
Hoshiárpur, 256, 130.
Hoskóta, 240, 57.
Hot springs, *see* Springs.
Húkeo pass, 435, 68.
Hũm mountain, 312, 25.
Húri, *see* Úri.
Huriláung, *H.S.*, 132, 179.
Hursh, 194, 301.
Husapúra, *T.S.*, 122, 68.
Hushangabád, 184, 211.
Húshe, 458, 204.

I

Íbi Gámin glacier, 433, 58.
Íbi Gámin peaks, 334, 162; 415, 760-1.
Íbi Gámin pass, 336, 172.
Idamkál, 229, 212.
Ídgah, *T.S.*, 191, 278.
Igasárang mountain, 411, 729.
Ikhára, 192, 280.
Ímlia, *T.S.*, 130, 153.
Indargárh, *H.S.*, 192, 282.
Indráuni river, 211, 58.
Indúr, 184, 215; 201, 372.

Indus river, 146, 3; 149, 20; 154, 68; 159, 114; 431, 47; 446, 139; 447, 145; 456, 199; 464, 238.
Injáru, 228, 202.
Inpahgát, *H.S.*, 200, 370.
Iravádi river, 89; 113; 90, 113.
Islamabád, *see* Chittagóng.
Islamabád mountain, 397, 624.
Íva river, 289, 153; 294, 174.
Ismáel de Dóri peaks, 401, 671-2.

J

Jábera, 176, 150.
Jáblpur, 180, 190.
Jaboká, 107, 51.
Jafarabád, *T.S.* and town, 127, 120; 192, 287.
Jagatsúk, 377, 458.
Jágesar mountain, 321, 75.
Jággăr castle, 272, 24.
Jahnávi river, 311, 213; 346, 224; 348, 239.
Jáipur, 102, 7.
Jáira bridge, 255, 322.
Jáirong, 103, 12.
Jaisinágger, 176, 151.
Jáithia Dévi, 381, 483.
Jaitók, 375, 440.
Jajmáu, *T.S.*, 126, 108.
Jakanári, 215, 106.
Jakatálla, 245, 111.
Jakhún, 311, 49.
Jáko mountain, 378, 465.
Jáktung peak, 108, 53.
Jalhótar, *T.S.*, 127, 122.
Jaliadhár, 170, 91.
Jálna, 194, 303.
Jám ghát, 187, 233.
Jamálpur, *T.S.*, 121, 63.
Jammánu, 291, 162.
Jámna river, 164, 24; 355, 286; 357, 298; 360, 317; 361, 321; 367, 372; 370, 396; 371, 404.
△ Jámnótri, 355, 286.
Jámu, 398, 635.
Jámu mountain, 372, 415.
Janái, *T.S.*, 130, 159.
Janák peak, 150, 34.
Janévi river, *see* Jahnávi.
Jangartilla mountain, 383, 500.
Jángi, 410, 718.
Jánglik, 364, 345.
Jánglung pass and spring, 456, 198.
Jánglung peaks, 440, 107-8.
Janjíri, *T.S.*, 122, 73.
Jánnu peak, 289, 155.
Jansói bridge, 255, 315.
Jánti pass, 317, 62.
Jarádi hill, 236, 18.
Jaráit, 389, 559.
Jarára, 373, 426.
Jaskángrang mount., 411, 728.
Jasáur mountain, 390, 565.
Jasrótha, 396, 617.
Játvar, 365, 356.
Jáudhpur, 372, 417.
Jáuli, 310, 8.
Jáuli peak, 317, 234.
Jáulna, *see* Jálna.
Jáura, 175, 136.
Jehanabád, *T.S.*, 126, 107.
△ Jelábu, 316, 55.
Jelálpur, 154, 67.
Jeldurgáh, 228, 197.
Jellála peak, 147, 7.
Jerúra, *T.S.*, 126, 111.
Jésai, 331, 159.
Jéta Bágar, 320, 73.
Jhála peak, 317, 236-7.
Jhamát, 150, 33; 151, 44.
Jhánkri, *H.S.*, 161, 2.
Jhánsi, 154, 21; 201, 373.
Jhánsi ghát, 181, 193.
Jhílum, 153, 60.
Jhílum river, 153, 60; 403, 662; 404, 673; 405, 677, 678, 682; 406, 685.
Jhósimath, 331, 138.
Jhul ghát, 311, 18.
Jhurgáh, 191, 270.
Jibjíbia peaks, 298, 207-9.
Jujúri, 212, 68.
Julála, 228, 203.
Jullapahár, 284, 120.
Jímu, 373, 426.
Jinkór, 204, 14
Jiról, *T.S.*, 139, 240.
Jiúra, 206, 26.
Job Mákanpur, *T.S.*, 138, 234.
Jógar, 362, 330.
△ Johílla Sar, 184, 217
Joneámi ghat, 186, 231; 201, 372.
Jónti pass, 362, 337.
Jubbulpoor, *see* Jáblpur
△ Júgta, 438, 92.
Júma, 311, 10.
Júnia Gárh, 339, 191.
Jvalagárh, 390, 572.
Jvála Múkhi, 391, 575.

K

Kabkót, 326, 104.
Kachár, *H.S.*, 166, 40.
Kádapa, 229, 209.
Kadapunabétta, 218, 111.
Kadháti hill, 108, 60.
Kadukadapúe, 251, 153.
Káfini river, 323, 83.
△ Káfir Déra, 453, 182.
Káfir peak, 424, 12.
Káfir Kót peak, *see* Lákai Júni.
Kága peaks, 440, 100-1.
Kăglanvála, 155, 78.
Kahintál, *see* Tsokór.
Kailasgárh, *H.S.*, 236, 16.
Kailás hill, 204, 11.
Kaimúr, *H.S.*, 171, 97.
Kaimúr range, 171, 99.
Kainkéra, *T.S.*, 125, 96.
Káisi, 107, 49.
Kaj Nag peak 403, 664.
Kákani ridge, 299, 215.
Kála Uzúra, 356, 289.
Kalabágh, 152, 57.
Kalabágh peak, 153, 57.
Kaládghi, 220, 131.
Kaladúngi, 337, 178.
Kálámbi, 217, 102.
Kalamúni pass, 315, 52.
Kalapáni, 110, 75.
Kaldúnkar Kánta pass, 349, 243.
Kaldrúg, *H.S.*, 195, 311.
Kaléshvar, 196, 328.
Kálhét river, 285, 132.
Kálhét valley, 291, 161.
Káliankóti, 333, 155.
Kalinágh mountain, 313, 39.
Kalínjar, 165, 37.
Káli river, 310, 6; 340, 192.
Kaliánpur, *T.S.*, 121, 93.
Kalináth, 326, 110.
Kálkóta, *H.S.*, 242, 76.
Kállaga, 326, 108.
Kallagamálli, *H.S.*, 243, 85.
Káloa mountain, 392, 585.
Kalpú river, 302, 231.
Kalsubái peak, 195, 316.
Káltse, 456, 199.
Kálu Gánga river, 253, 169.
Kalumár, *H.S.*, 178, 164.
Kamáikia, 103, 11.

Kamáldaha, *T.S.*, 143, 290.
Kamandrúg, 203, 8.
Kambetaríne, *H.S.*, 214, 94.
Kambochén pass, 293, 166.
Kámchang peak, 437, 81.
Kámet peak, *see* Ibi Gámin.
Kámla, 388, 545.
Kámpli, 223, 154.
△ Kámpo Sámdong, 278, 71.
Kámpti, 189, 261.
Kámpuli, 205, 21.
Kamtául, *T.S.*, 136, 215.
Kanakéra, *T.S.*, 126, 109.
Kanakghérri, 222, 148.
Kanchinjinga peaks, 287, 142-3.
Kand Hokánni peak, 150, 31.
Kánda, 360, 318.
Kánda river, 360, 318.
Kandakúr, *H.S.*, 200, 367.
Kandál ghat, 351, 259.
Kandálla, 193, 292.
Kande, 458, 205.
△ Kandéta, 346, 222.
Kándele, 351, 157.
Kándi, 249, 142; 370, 403.
Kandiakhál pass, 340, 196.
Kandighát mountain, 365, 353.
Kanérgáú, 193, 296.
Kangiám, 242, 80.
Kángra, 392, 581.
Kángra mountain, 369, 390.
Kánhpur, 126, 106.
Kanimapótha, *H.S.*, 242, 74.
Kanipúra, 158, 105
Kaniún, 342, 207.
Kánji, 449, 161.
Kánji pass, 450, 163.
Kánji peak, 450, 163.
△ Kánji Súmdo, 458, 206.
Kánkra mountain, 334, 156.
Kankúrti, *H.S.*, 200, 366.
Kánna, 158, 102.
Kannapúram, 199, 358.
Kannúr, *H.S.*, 235, 12.
Kantagáú, 313, 34.
Kántára Kánta pass, 351, 258.
Kánum, 410, 720.
Kánva, *T.S.*, 121, 65.
Kapnól, 358, 308.
Kápria, 204, 19.
Karakásh river, 152, 179, 181; 453, 183, 186.
Kára nádi, 211, 58.
Karái, *T.S.*, 125, 104.
Karáia, *H.S.*, 162, 9.
Karakorúm pass, 426, 20.
Karándi, 195, 319.
Karángali peak, 153, 62.
Karangúli, *H.S.*, 231, 5.
Karasóli, *H.S.*, 105, 31.
Karatkóti, 345, 219.
Karavétti, 251, 154.
Karavétti Ár river, 251, 154.
Kárbu, 300, 217; 451, 168.
Kárbu pass, 299, 214.
Kárbu peak, 288, 148.
Kárchunt mountain, 396, 616.
Kárdong, 382, 495; 455, 194.
Kárdong peak, 380, 473.
Karénchia, 185, 219.
Kárgil, 456, 200.
Karhua, 178, 163.
Kariámi, *T.S.*, 121, 59.
Karínja, 190, 264.
Káripur, 215, 89.
Kárkálmati, 220, 133.
Kárkyag, 447, 149.
Kárli, 206, 27.
Karnál, 114, 3; 158, 107.
Karnála, 203, 10.
Karnatigárh, *H.S.*, 236, 15.
Karnúl, 228, 200.
Karnpreág, 339, 185.
Kárpur mountain, 396, 620.
Kárra, *T.S.*, 130, 160.
Kársióng, 283, 115.
Kársva peak, 366, 365.
Kártse river, 456, 200; 459, 215; 460, 217, 219.
Kartár, *H.S.*, 165, 35.
Karumálli, *H.S.*, 240, 56.
Kasál mountain, 375, 439.
Kásari, 192, 286.
Káshgar, 469, 266.
Káshbir fort, 412, 734.
Kasiátu, *H.S.*, 134, 195.
Kásrak, *T.S.*, 124, 89.
Kassád bridge, 255, 317.
Kassurmík, 460, 220.
Katári Kánta pass, 349, 242.
Katarmál, 328, 118.
Katáss, 153, 65.
Kátha Músral, 155, 77.
Kathéra, *H.S.*, 161, 28.
Káthi, 324, 94.
Káthki Náu, 339, 189.
Kathmándu, 300, 216.
Kátia, *T.S.*, 128, 133.
Kátong ghát, 280, 90.
Katrúj ghát, 209, 49.
Kattíngi, 178, 168.
Káttra, 166, 47.
Katsupérri lake, 282, 109.
Kattighérri, 221, 134.
Kátua, 395, 608.
Káulia mountain, 301, 221.
Kauvássa, 188, 250.
Kávari river, 237, 23; 246, 118.
Kavaripák, 234, 8.
Kázi, 439, 94.
Kéadom, 280, 85.
Kéla, 310, 6.
Kem, 220, 126.
Kenachétt, 135, 201.
Keng river, 113, 91.
Kcoobrung pass, *see* Kióbrung.
Kerrái Bellagál, 227, 192.
Kermér river, 184, 213.
Kérri Panjál pass, 404, 676.
Késnu, 359, 317.
Khab, *see* Chap.
Khábang, 294, 171.
Khábili saddle, 293, 168.
Khachród, 178, 165.
Khágan peaks, 429, 34-7.
Khair, *see* Khēr.
Khámlapur, 218, 116.
Khálsi pass, *see* Gundeát.
Khan Pisúri hill, 218, 108.
Khána peak, *see* Mer.
Khandála, 205, 22.
Khánpur, *T.S.*, 129, 140.
Khánpur, 159, 112.
Khápalu, 459, 212.
Khára, *T.S.*, 129, 141.
Khári Nálah, 107, 49.
Khársáli, 356, 290.
Khát, 333, 151.
Khēr, 196, 326.
Khér river, 195, 315.
Khéri peak, 155, 81.
Khiúra, 154, 70.
Khorádi, *H.S.*, 131, 168.
Khoshialgárh, 149, 20.
Khótan, *see* Élchi.
Kī peak, 438, 89.
△ Kiángchu, 445, 136.
Kíbar, 438, 93.
Kidarkánta, 360, 323.
Kídarnath peak, 342, 205.
Kídarnath glacier, 341, 202.
Kídarnath, 342, 205.
Kilarmáu, *T.S.*, 121, 60.
Kilhátti, 246, 116.
Kimíra, *H.S.*, 189, 251.
Kinchinjháu massif, 276, 53.
Kinéshvar, 206, 28.
Kinkuáli pass, 347, 235.
Kinnibári peak, 466, 253.
Kinsúra, 353, 273.
Kióbrung pass, 407, 692.
△ Kióm, 422, 6.
△ Kiónlang, 327, 115.
Kióto peak, 439, 99.
Kiréshvar, 209, 43.
Kirigalpótta peak, 249, 145.
Kishangánga river, 399, 647; 405, 681.
Kishtvár peak, 393, 591.
Kissiláb river, 453, 187; 454, 188.
Kissilkorúm pass, 426, 19.
Kissilkorúm peaks, 425, 16-17.
Kistna river, *see* Krishna.
Kistnaghérri, 238, 33.
Kistnaghérri ghát, 238, 38.
Kistnamchittipílli, 229, 210.
Kiúk Kiól salt lake, 453, 184.
△ Kiukúchi, 409, 703.
Kiukúchi peak, 410, 712.

△ Kiúngar, 320, 72.
Kiúngar pass, 320, 72.
Klosepét, 243, 90.
Koálong river, 316, 58.
Kodanád peak, 245, 102.
Kodúr, 230, 220.
Kodúr pass, 227, 194.
Koelkónda, *H.S.*, 226, 187.
Koghíra, 226, 183.
Kohát, 148, 17.
Kohát pass, 148, 17.
Koimbatúr, 244, 100.
Kój, 195, 312.
Kókra, *T.S.*, 126, 112.
Kókan mountain, 380, 475.
Kóksar, 378, 464.
Kolanellúr, *H.S.*, 239, 49.
Kolár, 238, 36.
Kóli, 392, 587.
Kolgóng, 107, 49.
Kol Nárva peak, 397, 625.
Kólung, 381, 486.
Kólva hill, 203, 9.
Komarsámi, 222, 152.
Komhársen, 373, 425.
Kómpti, 217, 100.
Konakúndlu, *H.S.*, 225, 174.
Kondapílli, *H.S.*, 225, 180.
Kóngra Láma pass, 279, 79.
Konikóma, 232, 230.
Kõp, 220, 130.
Korána hill, 156, 92.
Kóri, 363, 338.
Kórzog, 443, 125.
Kosdéra, 170, 82.
Kossílla river, 329, 129; 332, 145; 339, 190; 340, 193.
Kót, 373, 427.
Kóta, 170, 86.
Kotakodángal, *H.S.*, 199, 357.
Kotamarpílli, *H.S.*, 198, 348.
Kotapílli, *H.S.*, 225, 178.
Kotár Kaimári, *H.S.*, 167, 58.
△ Kotásh Chílga, 455, 192.
Kótela, 393, 594.
Kotgárh, 372, 420.
Kóthi, 153, 58.
Kóthi peak, 153, 58.
Kotlér, 390, 560.
Kótli, 401, 675.
Kovillpátti, 240, 52.
Kríngcha mountain, 378, 463.
Krishna river, 208, 37; 210, 53; 212, 65; 218, 113.
Krõl mountain, 380, 478.
Krúpu pass, 436, 75.
Kúa mountain, 414, 749.
Kudankolám, *T.S.*, 241, 66.
Kudatánni, 223, 158.
Kuknúr, 198, 345.
Kulikhána, 302, 228.
Kúllan, 397, 623.
Küllong rock, 112, 87.
Kúlsan, *T.S.*, 124, 87.
Kúlzum pass, *see* Kúnzum.
Kúlzum peak, *see* Kúnzum.
Kumállu Dánda pass, 361, 326.
Kumhári pass, 302, 227.
Kúmpur, 334, 158.
Kunaturpótha, *H.S.*, 241, 68.
Kunch, 170, 84.
Kunchétt, 135, 201.
Kúnda peak, 247, 122.
Kundálka river, 191, 303.
Kundamóya peak, 245, 109.
Kundabétta peak, 245, 105.
Kúndapur, 214, 77.
Kundhálli, *H.S.*, 248, 133.
Kundúr, *H.S.*, 217, 129.
Kundúrki, *T.S.*, 119, 40.
Kúndva, 131, 471.
Kúngma pass, 436, 71.
Kunlás peaks, 306, 265-6.
Kunnúr, 245, 111.
△ Kúnti, 310, 5.
Kúntil mountain, 368, 379.
Kúnu, 409, 704.
Kúnzum pass, 370, 398.
Kúnzum peak, 369, 388.
Kurái, 188, 245.
Kurái ghat, 188, 244.
Kurtékh peak, 306, 267.
△ Kurumpúlu, 447, 145.
Kushinát, 467, 255.
Kuskári, 178, 169.
Kúsmar, *H.S.*, 171, 103.
Kusumbáni, *H.S.*, 187, 240.
Kússak fort, 153, 64.
Kussialgárh, *see* Khoshialgárh.
Kutcapára, *H.S.*, 239, 44.
Kutnór, 357, 301.
Kvárding, 382, 491.
Kyagám, 449, 158.
Kyagár, 455, 195
Kyúk Kyk Yóva, 113, 89.

L

Lábrang, 411, 721.
Lábcha pass, 436, 76.
Lácha Lung pass, 445, 137.
Láchen river, 279, 77.
△Láchi-piá, 274, 36.
Láchmipur, *T.S.*, 144, 293.
Láchung, 275, 46.
Láchung river, 277, 61.
Ládnia, *T.S.*, 141, 269.
Laghép, 276, 52.
Lahór, 157, 99.
Láidom, 112, 84.
Lailangkõt, 109, 68.
Lakadóng, 108, 62.
Lákai Júni, 151, 39.
Lákái Tíji peak, 155, 76.
Lákau, *T.S.*, 128, 138.
Lakána, 107, 52.
Lakanpúra, *H.S.*, 173, 116.
Lákat Khal pass, 343, 209.
Lakenvádi, 191, 277.
Lakes (fresh water, glacier, and salt lakes), 159, 116; 208, 37; 282, 109; 329, 128; 330, 131-2; 338, 180; 341, 202; 349, 243; 355, 287; 374, 428; 394, 598; 423, 9; 425, 18; 430, 40, 41, 44; 441, 111, 113, 114, 115; 442, 119; 443, 125, 127, 130; 444, 135; 445, 136; 453, 184; 459, 210; 466, 253; 488.
Lákhimpur hills, 102, 8.
Lákhnadáun, 185, 220.
Lákhnáu, 128, 135.
Lálapur, *H.S.*, 164, 29.
Lal Darváza pass, 366, 362.
Lalpét, 236, 21.
Lálpur, 180, 184.
Laltípa hill, 363, 340.
Láma Yúru, 450, 164.
Lam pass, 436, 73.
Lambagáû, 389, 550.
Lambatáj mountain, 366, 364.
Lámba Thãt, 346, 224.
Lámbar peak, 409, 705.
Lámteng, 278, 76.
Lánag pass, 441, 116.
Lanáuli, 205, 24.
Landáur, 363, 340.
Lándi, 158, 104.
Lang Tso lake, 459, 210.
△ Lángsi Khát, 332, 148.
Langóte mountain, 385, 513.
Langúr, 351, 262.
Langúr peak, 297, 197.
Lángurpur, 405, 679.
Lánka Island, 401, 652.
Lángpia pass, 430, 46.
Laóche pass, 423, 9.
△ Laptél, 431, 48.
Laptél river, 431, 48.
Lára, 438, 88.
Lári, 437, 78.
Lária Kánta peak, 330, 131.
Lárimo peak, 423, 8.
△ Lársa, 444, 134.
Lássur, 193, 298.
Latúna, *T.S.*, 142, 278.
△ Látong, 278, 70.
Lútu peak, 322, 81.
Lébon pass, *see* Lóbug.

Lédasal, *H.S.*, 141, 263.
Leh, 446, 145.
Lenglúng castle, 272, 21.
Leómia, 345, 221.
Lepiána mountain, 392, 588.
Lessór river, 317, 64.
Libóng, 284, 120.
Lilumgánga páni spring, 322, 80
Limchúla, 326, 111.
Lingcham, 285, 129.
Lingmó, 280, 91.
Lingo, 280, 88.
Lingtam, 282, 106.
Lingtam spur, 280, 92.
Lingvár, 365, 350.
Linje, 272, 20.
Lípi, 411, 724.
Lipu Leg pass, 430, 42.
Lipúki Than pass, *see* Hartól.
Litki, 314, 44.
Little Rángit river, 286, 138.
Loñ, village & glacier, 319, 68.
△ Loáka, 318, 66.
Lóbagárh, 336, 171.
Lóbug pass, 311, 11.
Lohargáñ, 170, 83.
Lohárkót, 328, 125.
Lohavár, *H.S.*, 136, 208.
Lohubgálle, 249, 145.
Lohughát, 313, 41.
Lolóni glacier, 385, 514.
Lolóni pass, 385, 514.
△ Lomórti, 434, 59.
Lónand, 213, 75.
Lóra, *H.S.*, 177, 162.
Loraméla peak 149, 24.
Love Grove, 203, 3.
Lucknow, *see* Lákhnáu.
Lúdas, 460, 216.
Ludhiána, 158, 101.
Lul, *H.S.*, 175, 139.
Lúlan Gárhi, 322, 77.
Lundáki peak, 147, 14.
Lung mountain, 368, 383.
Lúngtung, 295, 185.
Lúni, 211, 61.
Lut, *T.S.*, 119, 34.

M

Machahói peak, 395, 606.
Machapúcha peak, 306, 260.
Madánpur, village and *T.S.*, 133, 187, 137, 224.
Madánpur mountain, 381, 485.
Madapúram, 228, 205.
Madávaram, 199, 356; 225, 176.
Mádhpur, *T.S.*, 105, 36.
Madras, 232, 233.
Madúr, 211, 98.
Madúra, 238, 37
Magfanni hill, 205, 22.
Mágru, 376, 441.
Mahabaléshvar, 207, 37.
Mahabáli, 356, 292
Mahadéo, 110, 72.
Mahadéopur, 197, 331.
Mahadhváni, 392, 586.
Mahalákshmi, *H.S.*, 193, 300.
Maháldiram, 282, 112.
Mahapánth peak, *see* Kídarnath.
Maharájpur, *H.S.*, 162, 8.
Maharáni-ka-páua, 301, 220.
Mahássu, 377, 452.
Mahavélli Gánga, 249, 143; 252, 159.
Máher, *H.S.*, 136, 206.
Mahesári, *T.S.*, 118, 32.
Máheva, 170, 90.
Mahídpur, 177, 161.
Máhimudpur fall, 255, 305.
Máhu, 186, 230.
Máiapur, 255, 300.
Máihar, *H.S.*, 171, 98.
Maikánda, 310, 194.
Maillachérri, *H.S.*, 234, 9.
Mainpúri, 254, 297.
Mámom mountain, 281, 105.
Márong, 112, 85
Maissúr, town and *H.S.*, 246, 119; 247, 120.
Majarkánda, 311, 19.
Majgóva, 178, 167.
Majhár, *H.S.*, 162, 6.
Majilgáñ, *T.S.*, 129, 142.
Makarámbi, 291, 170.
Makhóri pass, 385, 510.
Makhóri peak, 385, 510.
Makóri peak, 150, 29.
Miktal, 200, 371.
Makúrti peak, 247, 123.
△ Makvanpúra, 303, 237.
Málabar hill, 203, 3.
Malamingpílli, 238, 32.
Malári, 323, 86.
Malári peaks, 415, 756-8.
Maláun, 386, 521.
Malegáñ, 191, 274.
Málekpur peak, 403, 669.
Malevári, 217, 105.
Málgan peak, 413, 743.
Málgan river, 412, 731.
Malgáñ, 217, 103.
Malghín, 149, 25.
Malishón, 451, 170.
Máljo, 314, 46.
Málkapur, 199, 352.
Mallapannabétta, *H.S.*, 247, 125.
Mallapóde, *H.S.*, 233, 2.
△ Málla Shállong, 315, 55.
Málliga, *H.S.*, 198, 340.
Malliabád, *H.S.*, 225, 173.
Malpárba river, 221, 134, 138.
Málsej ghát, 209, 44.
Málti, *T.S.*, 139, 244.
Maluakhél lake, 329, 128.
Malulhúpia pass, 108, 57.
Mamdabád, *T.S.*, 123, 77.
Mámlu, 111, 80.
Mánu, 159, 111.
Mán river, 222, 149.
Mána, 331, 139.
Máña ghát, 338, 180.
Manáda river, 197, 330.
Mánang, *H.S.*, 161, 27.
Manantavádi, 247, 127.
Mánchar lake, 159, 116.
Mandágni river, 340, 192; 341, 202.
Mandakhél, 154, 68.
Mándal, 338, 181.
Mándal river, 345, 221.
Mándani, 389, 558.
Mandáre river, 251, 152.
Mandgáñ, 191, 272.
Mandháta peak, *see* Gúrla.
Mándi, 381, 507.
Mandigunáma ghát, 229, 207.
Mándla, 186, 227.
Mándla pass, 186, 228.
Mandlasár, 187, 236.
Mándra, *H.S.*, 176, 144.
Mandúri peak, 149, 22.
Mándvi hill, 206, 29.
Mángala ka páni, 315, 52.
Mangaldái, 254, 94.
△ Mangkáng, 441, 112.
Mángnang, 432, 53.
Mángova, 168, 61.
Mángsoli, 218, 110.
Mángu pass, 347, 235.
Mángul, 107, 689.
Máni Mahés peak, 388, 546.
Manikárn, 374, 433.
Manimájra, 386, 518.
Mánirang pass, 437, 79.
Mánirang peak, 437, 79.
Mankúr, 107, 49.
Mansaráur salt lake, 430, 40.
Manzéra river, 197, 335.
Mápan, 319, 70.
Mápeng peak, 110, 77.
Marájpur, 179, 174.
Márak, *H.S.*, 141, 261.
Marárli mountain, 368, 382.
Marbagárh mountain, 356, 291.
Márchalang, 445, 138.
Marchár, *H.S.*, 175, 134.
Márfa, 165, 32.

Márgan pass, 394, 602.
Marganhállit, 240, 59.
Mári, 153, 57.
Mári peak, 153, 57.
Maribú, 300, 218.
Marinág peak, 403, 663.
△ Markopáua, 302, 230.
Marári, 340, 195.
Márri, 406, 688.
△ Márri, 377, 454.
Mártoli, 316, 61.
△ Mártoli, 322, 79.
Mártoli river, 316, 55.
Marvadévi mountain, 386, 517.
Marvándi, *T.S.*, 155, 74.
Marvás, *H.S.*, 172, 113.
Marzigón, 458, 207.
Masáhi, 131, 171.
Masáhi peak, 131, 171.
Masaldánga, *T.S.*, 113, 292.
Masartál lake, 349, 243.
Masénno glacier, 428, 32.
Masheribrúm peaks, 427, 23-4.
Másí, *T.S.*, 131, 165.
Masiráni mountain, 361, 329.
Massrássa, 364, 344.
Mássúri, 363, 340.
Mastúra, 339, 188.
Matáĩ, 405, 243.
Máteli, 252, 163.
Máthra, 116, 20.
Matína Pátin, 249, 142.
Mátrol, 115, 14.
Mattiána, 371, 431.
Maturálte, 249, 145.
Máu, *T.S.*, 124, 90.
Máua, *T.S.*, 127, 119.
Mauringrín, 109, 70.
Máyang La pass, 435, 67.
Máyong river, 287, 147.
Máyong valley, 288, 149.
Mazagón hill, 203, 3.
Meghasíni, *H.S.*, 189, 254.
Méndok Kär rock, 464, 238.
Mer peak, 460, 222.
Méra, 404, 676.
Méra, *H.S.*, 201, 12.
Merkára, 248, 132.
Métra, *T.S.*, 120, 52.
Metupálliam, 244, 101.
Metvári, 208, 39.
Mhow, *see* Málu.
Mháu, *H.S.*, 165, 36.
Migahakiále, 259, 151.
Mijar, *H.S.*, 218, 115.
Mik, 281, 104.
Mílik, *T.S.*, 119, 42.
Milum, 318, 67.
Milum Darváza peaks, 325, 95-7.
Minachipúram, *H.S.*, 239, 47.
△ Minasáura, 318, 241.
Miránpur, 124, 92.
Mirgánj, 181, 191.
Mírath, 116, 21.
Mírkvéli peak, 119, 19.
Míru, 113, 742; 146, 141.
Míru peak, 147, 146.
Mirzapur, *T.S.*, 140, 255.
Mírzapur, 133, 186.
Mita Béri, 366, 359.
Miva Gnóla, 296, 193.
Móflong, 109, 71.
Móghulpur, 219, 124.
Mógung Máyo, 113, 91.
Móhol, 221, 135.
Mokerían, 256, 125.
Mokhóri peak, *see* Makhóri.
Móling, 385, 514.
Molopálliam, *H.S.*, *see* Parmátti.
△ Monái Sámdong, 275, 47.
Monái, 112, 87.
Móughir, 107, 49; 142, 272.
Mon Lépcha mountain, 286, 137.
Mópat peak, 109, 67.
Mópea, 110, 74.
Móplang, 109, 71.
Mórang peak, 109, 707.
Mórni, 381, 484.
Morshiádi peaks, 304, 246-51.
Mothesár mountain, 326, 109.
Mótli peak, 386, 523.
Mount Browne, 326, 107.
Mount Everest, *see* Gaurisánkar.
Mountains of India and High Asia, 495.
Mozafarabád, 405, 681.
Mozáfarnágger, 116, 22.
Mubarákpur, *T.S.*, 106, 40.
Múd, 408, 699; 439, 97.
Múdhál, 219, 125.
Múglab, 443, 129.
Múgli, 236, 19.
Múkba, 348, 239.
Muktiárpur, *T.S.*, 138, 231.
Múla river, 209, 48.
Múlbe, 160, 218.
Multái, 188, 247.
Mulvágel, 237, 28.
Munái, *T.S.*, 130, 156.
Múnda, 182, 202.
Múndi Saeni hill, 132, 175.
Múngra, 361, 324.
Munkáta Ganés, 345, 220.
Múnne, 448, 154.
Muradabád, 251, 296
Murar (Gyáhoi), 162, 4; 201, 372.
Murári, *H.S.*, 188, 243.
Múre Tso salt lake, 145, 136.
Murergarh, *H.S.*, 177, 152.
△ Murgái, 454, 189.
△ Mururutsé, 162, 230
Musakhél, 155, 75.
Músapur, *T.S.*, 163, 12.
Mushái, 109, 64.
Musighérri, 221, 141.
Mustágh glacier, 461, 226.
Mustágh pass, 427, 25.
Múta river, 209, 48; 215, 86.

N

Náchar, 367, 369.
Nachengáũ, 190, 268.
Nadáun, 391, 576.
△ Nafghán, 394, 602.
Nagamálli, *H.S.*, 239, 50.
Nagárchun, 301, 222.
Nágari, 231, 228.
Nágari ghát, 231, 227.
Nágari river, 231, 228.
Nagathána ghát, 204, 18.
Nagáund, 169, 73.
Nagchérri ghat, 214, 80.
Nagdílpur, *T.S.*, 128, 139.
Nágger, 379, 471.
Nagkánda, 373, 424.
Nag nádi, 190, 262.
Nágonath, 164, 23.
Nagótna ghát, *see* Nagathána.
Nágpo Góntsin pass, 442, 124.
Nágpur, 190, 262.
Nágri, 191, 279.
Nagróti, 390, 561.
Nahán, 375, 443.
Naiagárhi, 166, 49.
Naikanári, 237, 25.
Naimitál, 329, 131.
Naimtál lake, 330, 131.
Naithána, 336, 170.
Náko, 436, 74.
Náko pass, 436, 74.
Nakóri, 324, 90.
Nalachérla, 200, 364.
Nalahpátan, 339, 192.
Nalánda hill, 201, 19.
Nalána Kánta pass, 348, 241.
Nalapáni, 362, 336.
Nalgún pass, 359, 313.
Nalhátti, 107, 49.
Nalkánta peak, 337, 174.
Nálla Málla peak, 229, 207.
Nallánde, 252, 162.
Nálli, 156, 84.
Nalúncha, *H.S.*, 105, 29.
Namána, *T.S.*, 127, 121.

Nambal, 154, 73.
△ Námchi, 281, 103.
Námga, 278, 68.
Námgia, 408, 697.
Namjáng peak, 310, 2.
Námiga pass, 451, 168.
Namkaldrúg, 238, 34.
Námpak, 281, 105.
Námpok, 281, 99.
Námsang, 108, 58
Námten, 281, 98.
Námtso glacier lake, 371, 428.
Námu, 107, 49.
Nam Yang river, 113, 91.
Namúna Kúli peak, 250, 147.
Nána ghat, 208, 38.
Nána peaks, *see* Ser Mer.
Nanaspár, *H.S.*, 366, 366.
Nanda, 189, 258.
Nánda Dévi peak, 323, 84.
Nandagáma, 199, 359.
Nánda Khát pass, *see* Traill's pass
Nanda Khat peak, 321, 76.
Nandákna peak, 328, 125.
Nandákni river, 339, 184.
Nándalur, 230, 217.
Nandér, 196, 325
Nandgáñ, 192, 283
Nandi, *T.S.*, 121, 61.
Nandidrug, *H.S.*, 213, 88.
Nandigáñ, 200, 368.
Nándni river, 214, 81.
Nandpreág, 339, 184.
Nánga Parbát, *see* Diámar.
Nángi mountain, 291, 163.
Nángi pass, 289, 157.
Nángo pass, *see* Kambochén pass.
Nángta, 108, 55.
Nángtse river, 455, 194.
Naninpólu, 198, 343.
Nánki mountain, *see* Nángi.
Nankláu, 112, 83.
Narái peak, 147, 15.
Naraingánj, 183, 208.
Naraingárh, 212, 64; 251, 134.
Narangabád, 133, 182.
Naráyani peaks, 305, 253-61.
Nárbáda river, 181, 190, 191; 182, 198; 185, 221, 223; 186, 227; 187, 236.
Narhár, *T.S.*, 139, 246.
Nári river, 223, 155.
Narigáu, 270, 7.
Narkampilli, 199, 353.
Nársingh peak, 281, 121.
Narsinghghár, 173, 120.
Narmáu, *H.S.*, 177, 157.
Narsinghpur, 182, 201.
Nárseipur, 239, 43.
Nártiang, 109, 63.
Náru, *H.S.*, 170, 85.
Narvár, 163, 17.
△ Nassapanpátti, 319, 68.
Natharampálli, 237, 27.
Nátva Khan, 327, 113.
Natvára, 180, 187.
Naugáum, *see* Góltere.
Naunangárh, *T.S*, 133, 181.
Návi, 214, 79.
Nedimranchál, 248, 131.
Néla peaks, 350, 254-5.
Nellatúr, 232, 229.
Nellúr, 232, 231.
Nélong, 344, 213.
Nélong pass, 343, 211.
Nélong peak, 346, 231.
Neóngonǧ, 281, 100.
Neváda, 363, 339.
Newérra Ellia, *see* Nurélia.
Nibrang pass, 361, 328.
Níbria, *T.S.*, 106, 46.
Nígri, 208, 42.
Nihál bridge, 337, 178.
Níla peak, 429, 39.
Nilgárh, *H.S.*, 189, 256.
Nílo Sar lake, 466, 253.
Nimbadéra, 196, 324.
Níma Kar salt lake, 430, 44.
Nímach, 160, 120.
Nimkár, *T.S.*, 126, 116.
Ninga, *H.S.*, 170, 89.
Niónǧ, 278, 74.
Nipénia, *T.S.*, 123, 81.
Níra bridge, 213, 72.
Nirála, 115, 8.
Níra river, 211, 56; 213, 72.
Nirt, 371, 405.
Nísang, 409, 710.
Níti, 328, 124.
Níti ghát, 327, 115.
△ Niúgchang, 431, 49.
Nonkót, 303, 236.
Nóbug, 397, 621.
Nóda, *T.S.*, 106, 45.
Noh Dihíng, 102, 4.
Nólie, 182, 197.
Nonkrím, 109, 66.
Nórbu, 440, 103.
Northern Chándra Bhága peaks, 387, 531-4.
Nuh bridge, 255, 321.
Núnar, 399, 646.
Nunevára peak, 400, 649.
Núngpung, 102, 6.
Nunukándu mountain, 372, 418.
Nunulúka peak, 438, 90.
Nurélia, 249, 145.
Núrla, 449, 160.
Núrpur, 154, 72; 393, 597.
Nyémo, 448, 151.
Nymalíng peak, 446, 143.

O

Oanda peak, 270, 5
△ Oitásh, 125, 13
Ókimath, 339, 188.
Omerkuntuk, *see* Amarkántak.
Ontimítta, *see* Vontimétta.
Orampód, *see* Chóta Orampód.
Oshól, *see* Ussílla.
Otúr, 194, 301.

P

Pábar peak, 362, 335.
Pábar river, 362, 334; 364, 345; 368, 381.
Pabhósa, *H.S.*, 130, 155.
Pách Chúli peaks, 313, 36-8.
Pách Kund, a tank, 185, 223.
Pachapólliam, *T.S.*, 242, 72.
Pachaúr bridge, 255, 316.
Páchum, 285, 128.
Padar, 382, 492.
Pádum, 418, 155.
Pahargarh mountain, 398, 634.
Paipilli, 227, 196.
Pairúr, 225, 175.
Pajvár, 406, 685.
Páju, 318, 65.
Pakaria, 185, 222.
Pála peak, 206, 30.
Paládpur, *T.S.*, 137, 226.
Palamatúr, 237, 26.
Palamkótta, 241, 62.
Palampótu, 251, 156.
Palapatóla, 252, 168.
Palár river, 235, 10.
Paleáti pass, 324, 89.
Palghatchérri, 246, 117.
Paliapátu, 251, 152.
Pallikónda, 226, 185; 236, 17.
Palmélla, 197, 333.
Palmanér, 236, 20.
Palóri Sína pass, 324, 89.
Pálra fall, 255, 312.
Palsamúdram, 227, 193.
Pálsi, 212, 67.
△ Pálung, 277, 59.
Pálval, 115, 13.

Palváti, 196, 323.
Pámra mountain, 393, 592.
Pána, 332, 144.
Panamgúdi, 242, 77.
Panamík, *see* Pangmíg.
Panchadúrma, 169, 81.
Pándarpur, 220, 127.
Pándri, *T.S.*, 119, 39.
Pandím peaks, 280, 93-5.
Pándua, 105, 37; 107, 49.
Pandukésar, 333, 154.
△ Pang, 440, 102.
Pangarbása, 338, 181.
Pángi, 412, 731.
Pangkóng salt lake, *see* Tsomognalarí.
Pangmíg, 442, 117.
Pángoli, 205, 23.
Pángri, 200, 363.
Panigárh, 107, 49.
Panipát, 114, 4.
Pánjgánni hill, 210, 53.
Pankabári, 284, 122.
Pánkia, 321, 91.
Pánkimath, 335, 168.
Pannagárh, 179, 179.
△ Pantángsa, 422, 7.
Pánui pass, *see* Shátul.
Papágni river, 229, 206.
Pár, 207, 34.
Pára, *T.S.* and village, 163, 15; 186, 225; 201, 372
Páralia, 141, 268.
Párang pass, 439, 98.
Párasa, *H.S.*, 142, 271.
Paráuli, *T.S.*, 119, 36.
Párbáti peak, 369, 391.
Parénia, 174, 128.
Párgi, *H.S.*, 199, 354.
Pária, 248, 130.
Pariáú, *T.S.*, 130, 161.
Parisnáth, 139, 248.
Parmátti, 240, 51.
Parmióksong, 288, 152.
Parnér hill, 216, 92.
Pársar, *T.S.*, 127, 118.
Partimálli, *H.S.*, 242, 78.
Pashmín, 394, 601.
Pashnái ghát, 270, 4.
Pashnái river, 270, 4.
Páskyum, 460, 217.
Paspálla, 228, 199.
Passes of India and High Asia, 492.
Pásthu, 173, 122.
Pasture grounds, 480–1.
Páta Fabínda, 340, 193.
Pátal, *H.S.*, 135, 204.
Pátás, 216, 93.
Pathanchír, 198, 346.
Pathánkót, 395, 605.
Patheria, 173, 123; 180, 182.
Patiár, 389, 556.
Pátna, town and *H.S.*, 107, 49; 135, 205; 170, 92.
Pátra, *H.S.*, 171, 100.
△ Patséo, 376, 450.
Pattarkáni pass, 320, 72.
Pattikónda, *H.S.*, 237, 24.
Páttri fall, 255, 302.
Paugardrúg, *H.S.*, 225, 170.
Pauhánri, 274, 39.
Paukári, *H.S.*, 372, 419.
Paulamálli, *H.S.*, 211, 63.
Paulasamúdrum, *see* Palsamúdram.
Páumdi, *H.S.*, 226, 184.
Paupdár peak, 391, 574.
Páuri, 178, 172.
Pautáka Chéiru, 226, 182.
Páyu Tang pass, 157, 202.
Pávia, *T.S.*, 161, 22.
Peaks of India and High Asia, 495.
Péduru tálla gálle peak, 249, 145.
Pemiónghi, 285, 124.
Pémmi river, 294, 176.
Penarkún, 136, 207.
Péndera, 175, 140.
Péndera ghát, 175, 141.
Pén Gánga river, 193, 296.
Pennár river, 224, 168; 227, 193; 229, 208.
Péntse La pass, 459, 210.
Péntse Sámpo valley, 449, 432.
Pepréndi, *T.S.*, 163, 16.
Perambák, *H.S.*, 233, 1.
Peredénia, 249, 142.
Peréva, *T.S.*, 129, 144.
Pérgáú, 217, 104.
Periurmálli, *H.S.*, 243, 84.
Permakóst, *H.S.*, 218, 134.
Permál, *H.S.*, 213, 83.
Pérua, *see* Pándua.
Pesár, *T.S.*, 129, 147.
Pesháur, 146, 1.
Pétna, 323, 87.
Petólia, 335, 164.
Petoragárh, 312, 29.
Pháen, 273, 27.
△ Phálang, 440, 104.
Phárka, 316, 60.
Phiamúngba, 430, 46.
Phiáng, 449, 157.
Phóto La pass, 450, 165.
Phungalbúng peak, 101, 1.
Pilgahaténne, 250, 147.
Pilkúnta mountain, 331, 137.
Piming pass, 435, 65.
Pin river, 437, 78.
Pináth, *T.S.* and village, 119, 37; 329, 127.
Píndari glacier and river, 322, 79; 323, 83; 339, 185.
Pinjúr village, 386, 518.
Pipelkót, 333, 155.
Piparghári, 134, 194.
Piparía, *T.S.*, 125, 100.
Pípra, 169, 80.
Pirsinghpur, 167, 52.
Pirdáuri, *T.S.*, 112, 273.
Pir Panjál peaks, 396, 611-13.
Píri peak, 412, 735.
Pir ke dhéri peak, 429, 38.
Pírgánga river, 331, 159.
Piúra, 327, 113.
Plach, 375, 437.
Plants, highest phanerogamic, 317, 62; 336, 172; 421, 3; 501.
Plants, various, limits of, 140, 248; 316, 61.
Plateau-like surface of the Sátlej valley, 422, 6; 432, 50, 51, 52, 53; 434, 60.
Plateaux, mean height of, 183, 207, 208; 184, 214; 185, 218, 219, 223; 206, 31; 208, 37; 210, 59; 250, 146; 454, 190; 166, 250; 487.
Pochánna ghát, *H.S.*, 200, 365.
Póen, 458, 208.
Pog, 437, 80.
Pogansár, *T.S.*, 256, 124.
Pókra, *H.S.*, 171, 94.
Poliampétta, 230, 218.
Polikónda, *H.S.*, *see* Pallikónda.
Polokónka pass, 113, 128.
Pómrong, 109, 65.
Ponnasmálla, *H.S.*, 241, 69.
Póppera ghat, 171, 95.
Porgyál peaks, 436, 69-70.
Pormámla, 229, 211
Poshána, 402, 658.
Póta, *T.S.*, 137, 223.
Pothari, *T.S.*, 123, 76.
△ Póti, 338, 180
Prábhal, 204, 15.
Prangsái peak, 151, 45
Puári, 411, 730.
Púch, 401, 670
Púch pass, 403, 667.
Púch river, 404, 674
Púga, 442, 122
Púling, 431, 60.
△ Púling Súmdo, 343, 211.
△ Púllak, 154, 189.
Púna, 209, 48.
Punákha castle, 273, 29.
Punamálli, 232, 232.
Púnchi, *H.S.*, 177, 155
Púra, 125, 99.
Purandár, 210, 55.
Puréni, *T.S.*, 143, 284.
Purmándel ke Sir peak, 395, 609.
Púrna river, 192, 287.
Pusákha, 273, 30.
△ Púshu Bái, 467, 257.
Pussasáuli, 214, 81.
Pútta, 194, 310.
Putúr, 231, 226.

R

Radamádapur, *H.S.*, 143, 289.
Rágala, *H.S.*, 165, 30.
Ragáupur, *T.S.*, 130, 157.
Raghugárh, 187, 234; 201, 372.
Rághupur, 374, 434.
Rguiók, 285, 123.
Rahun, 257, 133.
Rái mountain, 311, 47.
Raichúr, 225, 177.
Raidáng mountain, 271, 15.
Railway stations, 107, 49; 201, 372.
Rájpur, 162, 5.
Rántal, 353, 271.
Raj ghát, 210, 55; 370, 396.
Rgaur peak, 388, 548.
Rajamandri, 199, 355.
Rajamágaram, 199, 360.
Rájapur, 216, 97.
Rájapur hill, 166, 41.
Rpáuli, *T.S.*, 119, 41.
Rajáuri, 402, 661.
Rajgárh, 379, 469.
Rajkót, 160, 122.
Rajmáchi hill, 205, 23.
Rajmirgárh peak, 184, 216.
Rájpur Áli, 187, 235; 201, 372.
Rajtár, 360, 317.
Rajupét, 197, 336.
Rajúri, 197, 332.
Rakchám peak, 357, 299.
Rukchóra peak, 412, 739.
Rakséria, *T.S.*, 127, 117.
Rákus Tal salt lake, 430, 41.
△ Ráldang, 442, 121.
Ráldang peak, 111, 726-7.
△ Rálha, 377, 459.
Rálha peak, 382, 493.
Ramanikhél, 156, 87.
Ramanmálle, 222, 150.
Rámapur, 215, 91.
Rambódde, *see* Rangbódde.
△ Ramchák, 383, 498.
Ramgánga river, 313; 35; 335, 166.
Ramgárh, 184, 213; 329, 126; 370, 402.
Ramnágger, *T.S.* and town, 127, 125; 113, 283; 172, 104; 185, 221; 254, 229.
Rámpur, town, *T.S.* and *H.S.*, 121, 61; 136, 211; 176, 143.
Rámpur Bólea, 105, 28.
Ramséj hill, 192, 290.
Ramuapúr, *T.S.*, 126, 113.
Rána, 357, 296.
△ Ránag, 442, 120.
Rangamálli, 103, 14.
Rángbi river, 283, 119; 285, 125.
Rangbódde, 249, 144.
Rangír, *H.S.* and village, 173, 118; 176, 147.
Rangít, 285, 125; *see* Little and Great Rangít.
Rángrig, 438, 91.
Rangtú spur, 282, 107.
Ráni Shikar mountain, 310, 9.
Ranigárh mountain, 349, 244.
Ranigánj, 107, 49
Ranikót peak, 147, 9.
Ránipur fall, 255, 301.
Ranjangáú, 215, 86.
Ranjitpur bridge, 255, 320.
Ránkpo, 276, 58.
Rárang, 411, 725.
Rári peak, 358, 302.
Rárik, 383, 497.
Ráshi, 236, 18.
Rásin, 218, 114.
Ráta dak peak, 321, 74.
Rátan Pir peaks, 399, 638-42.
Ratáng peak, 368, 378.
Ratangíri mountain, 386, 525.
Rátanpur, 402, 659.
Ráthi, 311, 11.
Ráthi glacier, 353, 275.
Ratnapára, 252, 167.
Rátong river, 283, 119; 286, 135.
Rátong ridge, 286, 139.
Ráu, *T.S.*, 126, 110.
Raulakót, 307, 268.
Raulpíndi, 147, 16.
Rayakótta, 239, 41.
Rebán mountain, 398, 630.
Relagárh river, 310, 6.
Réli, 176, 142.
Renghália, 313, 35.
Réoni, 330, 134.
Révat, 406, 683.
Rewah, *see* Ríma.
Rheóva hill, *H.S.*, 138, 238.
Ri-chu river, 270, 7.
Ríkhi spring, 350, 253.
Rikhikhés, 358, 306.
Rílhu, 392, 584.
Rilkót, 315, 57.
Ríma, 169, 78.
Rimatpur, 213, 74.
Rini river, 351, 261.
△ Rishi Tálam, 435, 63.
Rishimálli, *H.S.*, 240, 55.
Rispa, 410, 717.
Rissár ka Tal lake, 355, 287.
Rockville, 284, 120.
△ Róghas, 320, 74.
Rógi, 412, 738.
Róho, 406, 687.
Rombái, 108, 61.
Róngdo, 466, 252.
Róngo peak, 441, 110.
Rontán, 367, 375.
Róru, 368, 381.
Rotáng pass, 377, 454.
Rotásgárh, 168, 66.
Rothíngi pass, 435, 66.
Rothíngi peak, 408, 698.
Rovát, 148, 18.
Rúdru peak, 340, 198.
△ Rúkchin, 445, 136.
Rúkor pass, 408, 696.
Rúkor peaks, 408, 694-5.
Rumétu mountain, 377, 457.
Rump, 168, 65.
Rúnang pass, 411, 722.
Rúnepu peak, 367, 368.
Rungkóng temple, 271, 14.
Rúngul mountain, 376, 448.
△ Rúpal, 428, 28.
Rúpdi, *T.S.*, 134, 197.
Rupín pass, 359, 316.
Rupín river, 362, 332.
Rúrki, 117, 26.
Rúrki bridge, 255, 303.
Rúru, 369, 386.
Rúsrang mountain, 413, 744.

S

Sabáthu, 383, 501.
Sabhaválá, 367, 373.
Sabláko, 294, 177.
Sáchu pass, 392, 585.
Sáchi peak, 392, 582.
Sádia, 102, 5.
Sádragíri, *H.S.*, 241, 67.
Ságar, 174, 130.
Sahárunpur, 115, 15.
Sahiár, *T.S.*, 139, 245.
Sahínspur, 367, 374.
Saidára, *T.S.*, 128, 130.
Sáildang river, 367, 371.
Sáim Déo, 323, 88.
Saimonbóng, 286, 138; 287, 140.
Sáintea, 107, 49.
Sáipur, *T.S.* and village, 123, 74; 174, 126.

Sáiri pass, 382, 494.
Sákatpur, 332, 149.
Sákkar, 159, 114.
Sákma, *T.S*, 141, 260.
Säkráj, 138, 232.
Säkrőra, *T.S.*, 120, 49.
Saláia, 175, 132.
Saláũ, *T.S.*, 131, 166.
Salaűr fall, 255, 309.
Sálem, 238, 35.
Sálempur, *T.S.*, 119, 43.
Sáling, 459, 211.
Sällubóng, 289, 156.
Sálpi, 213, 76.
Sálpi ghāt, 213, 73.
Salt lakes, 488.
Sálung, 352, 264.
Sálva, 185, 218.
Samalkótta, 200, 361.
Samána, 114, 1.
Samanála peak, *see* Sripáda.
Sambhálka, 114, 5.
△ Samgáng, 316, 58.
Samnabánj mountain, 396, 615.
Samnádio, *T.S.*, 129, 143.
Sámnapur, 179, 177.
Sandálli peak, 147, 10.
Sángam, 209, 48.
△ Sangchúngma, 311, 15.
Sangkiók pass, *see* Nélong pass.
Sangkiók river, 344, 213.
Sángla, 359, 314.
Sángla peak, 359, 310.
Sángnam, 439, 95.
Sáni river, 347, 233; 348, 240; 351, 256; 353, 273.
Sanichri, *H.S.*, 161, 1.
Sankiatsáng, 294, 173.
Sankiatsáng ridge, 294, 179.
Sankósi peaks, 298, 202-6.
Sankráu, *T.S.*, 120, 47.
Sanktigárh, 107, 49.
Sánku, 460, 221.
Santagáũ, 272, 26.
Santighérri, 221, 140.
Sápar, 257, 135.
Sápni mountain, 413, 741.
Sárang, *H.S.*, 167, 56.
Sararím peak, 112, 82.
Saráuli mountain, 397, 626.
Sardáuni mountain, 377, 453.
Sárga Rúer peak, 340, 199.
Sargoróin peak, 352, 265.
Sárhan, *see* Séran.
Särkánda, *T.S.*, 143, 287.
Sarkára, *T.S.*, 120, 48.
Sárju river, 314, 43; 324, 89.
Sarsőtha, *T.S.*, 121, 57.
Sársu Dévi, 378, 460.
△ Särsútti, 337, 173.
Särsútti glacier, 336, 172.
Särsútti peak, 415, 759.
Särsútti river, 334, 163; 337, 173.
Sar Tsínguni La pass, 464, 235.
Sási, 272, 19.
Sáspola, 449, 157.
△ Sássar, 422, 7.
Sássar pass, 422, 7.
Sássaram, 132, 175.
Sasúka pass, 272, 22.
Sásvar, or Sássur, 211, 60.
Satára, 212, 63.
Satbákra, *H.S.*, 141, 259.
Satería, 171, 125.
Satgárh pass, 312, 24.
Sathvária, *T.S.*, 133, 185.
Sáti, 207, 35.
Satis tank, 364, 348.
Sät-kóla peak, 403, 666.
Sátlej river, 258, 101, 108; 370, 399; 371, 405; 373, 425; 386, 519; 387, 530; 408, 701; 411, 730; 413, 740; 431, 50; 432, 50; 433, 56; 435, 64.
Satmáru mountain, 389, 549.
Saunchália mountain, 336, 169.
Sávajpur, *T.S.*, 137, 227.
Savendrúg, *H.S*, 243, 91.
Sáyad Khēl, 155, 79.
Sáyal Sávi, 402, 660.
Sáyong, 112, 81.
Scbóla pass, 276, 56.
Sedashahpét, 198, 349.
Sehájpur, 119, 180.
Sehór, 180, 185; 201, 372.
Semráu, *T.S.*, 125, 98.
Sēnd river, 163, 10.
Seóji pass, *see* Tsóji.
Seónda, 164, 26.
Seóni, *see* Seúni.
Seontára, *T.S.*, 123, 82.
Ser Mer peaks, 160, 223-5.
Serampűr, 106, 43; 107, 49.
Séran, 368, 377.
△ Sērdár Kōt, 151, 41.
Sérias ghāt, 169, 79; 201, 372.
Sérin, 157, 98.
Seringapatám, 246, 118.
△ Seriómso, 277, 66.
Sérri ka Jōth, 384, 505.
Sérváya, *T.S.*, 127, 123.
Seúni, 187, 238.
Sévan, 159, 115.
Sevári, *H.S.*, 173, 121.
Sháhar Kōt, 157, 96.
Shahgánj, 167, 60.
Shahgárh, *T.S.*, 125, 97.
Sháhpur, *T.S.* and town, 138, 237; 156, 92; 180, 186.
Sháhar Déra, 150, 36.
Shalighérri, 220, 132.
Shalimár, 115, 9.
Shálang river, 319, 68.
Shálkar, 436, 76.
Shálong, 381, 487.
Shamsabád, 146, 5.
Shápion, 398, 636.
Shápion mountain, 398, 636.
△ Shall Harái, 467, 253.
Sháli mountain, 376, 446.
Sháncha peak, 372, 414.
△ Shángra, 434, 60.
△ Sharági, 322, 79.
Shátul pass, 365, 357.
Shátul peak, 364, 346.
Shayók river, 454, 188; 456, 197; 459, 211.
Shēkh Búddin peak, 156, 89.
Shēkh Níka peak, 152, 56.
△ Shélchell, 431, 48.
Shem Déo, 322, 82.
△ Shem Kárik, 319, 69.
Shenkoád, 197, 330.
Shennimálli, *H.S.*, 242, 79.
Sheopúri, 117, 28.
Sherghótti, 134, 193.
Shérpur, *T.S.*, 120, 53.
Shetarvári hill, 208, 40.
Shi mountain, 374, 429.
Shígar, 464, 237.
Shígar river, 165, 241.
Shigri, 371, 406.
Shígri peaks, 371, 407-13.
Shíka mountain, 311, 13.
Shikár mountain, *see* Shíka.
Shikári Dévi mount., 378, 466.
Shikárpur, 159, 113.
Shímpti, 311, 45.
Shingád river, 354, 275.
Shínku La pass, 382, 492.
Shipki, 435, 64.
Shíppur peaks, 342, 203-4.
Shirivéncha, 196, 327.
Shírval, 211, 56.
Shoh peak, 152, 53.
Shorkót, *see* Sháhar Kōt.
Shri Perumbudúr, *see* Striparmatúr.
Shrubs, upper limit of, 293, 165, 166; 315, 55; 320, 72; 321, 74; 335, 163; 338, 180; 343, 211; 354, 278; 385, 510; 413, 745; 421, 3; 425, 13; 434, 60; 444, 133, 134, 445, 137; 446, 141; 451, 167, 171; 454, 189, 191; 457, 203; 458, 206; 459, 210; 461, 226, 228; 462, 230; 463, 234; 466, 251, 253; 467, 257; 468, 261; 500–1.
Shung river, 447, 149; 448, 150-4.
Shupúri mountain, 299, 212.
△ Shúshing, 461, 226;
Siáhi, 382, 142.
Sialpánth, *see* Kéla.
Siamgárh, 158, 106.
Siarmári, 107, 49.

Sid, 391, 576.
Sidéshar, *H.S.*, 140, 257.
Sidíngba ridge, 294, 178.
Sídpur, 393, 589.
Sigáuli, 134, 191.
Sigur, 246, 116.
Sigur pass, 246, 116.
Sihsur peak, 297, 198.
△ Sikandar Mokám, 452, 179.
Sikandarabád, 198, 350.
Sikandarmálli, *H.S.*, 238, 39.
Sikandra, 117, 27.
Síkar mountain, 369, 393.
Síkesar peak, 154, 72.
Síkta, *T.S.*, 133, 189.
Silgóri, 103, 13.
Silothi, 332, 141.
Silva pass, 183, 203.
Sima peak, 107, 50
Siméra, 167, 51.
Simla, 378, 468.
Símra fall, 255, 313.
Simraha, *T.S.*, 142, 270.
Simsha river, 244, 98.
Simtónka mountain, 310, 8.
Sindh river, 395, 610; 397, 623; 398, 631.
Síndva, 189, 253.
Sinéra, *T.S.*, 136, 210.
Singdom pass, 281, 102.
Singdong, 277, 65.
Singe pass, 119, 156.
Singhalíla peak, *see* Falút.
Singhrámpur, 177, 160.
Singhrámpur pass, 177, 156.
Singhraur, *T.S.*, 131, 167.
Singhtám, 279, 81.
Singhva, 196, 321.
Singgah, 208, 39.
Sinnár, 191, 304.
Sipan river, 364, 345.
Sirakót, 312, 27.
Siramsgái, 244, 92.
Sirdhána, 115, 17.
Sirkumbádi, 231, 224.
Sirmául, *H.S.*, 166, 43.
Sirpur, 195, 318.
Sírsa, *T.S.*, 120, 46.
Sirtíba mountain, 380, 480.
Siruncha, *see* Shirivéncha.
Sirúr, 215, 87.
Sisgárh, *T.S.*, 122, 67.
Sispára, 247, 124.
Sissagárh pass, 303, 233.
Síssu peak, 382, 488.
Sitabáldi, 190, 263.
Sitapahár hill, 107, 49.
Sítoli, 326, 107.
Sittóng, 279, 78.
Singánj, 133, 183.
Skárdo, 164, 238.
△ Skiangbóche, 422, 7.
Snow-limit, 101, 2; 296, 196; 317, 62; 421, 3; 423, 9; 446, 142; 454, 189; 462, 230; 463, 231; 466, 253; 498.
Skóra La pass' 463, 234.
Sohági, 165, 38.
Sohúgi ghát, 165, 38.
Sohágpur, 179, 178.
Sohaval, 169, 72.
Sóhiong, 112, 81.
Sóholi, 215, 88.
Sohóra, 404, 674.
Sóla Singhi, 390, 564.
Solagáli, 194, 308.
△ Són Báddar, 186, 224.
Són river, 169, 81; 172, 107; 179, 178; 186, 224.
△ Sonám, 343, 211.
Sonári, 163, 10.
Sonipat, 115, 6.
Sora, *T.S.*, 129, 146.
Sóspor glacier, 457, 203.
Sóspor river, 457, 203.
Southern Chándra Bhága peaks, 390, 566-71.
Springs (cold, hot, saline), 102, 6; 184, 217; 188, 247; 205, 20, 22; 206, 32; 208, 37; 210, 54; 214, 80; 223, 154; 253, 169; 275, 50; 276, 53; 291, 163; 292, 165; 293, 165; 315, 52, 55; 316, 57; 319, 69; 320, 73; 322, 80; 325, 94; 330, 131; 342, 206; 344, 212; 346, 222; 350, 253; 354, 275; 355, 286; 356, 290; 357, 296; 359, 309; 360, 318; 474, 433; 378, 467; 380, 474; 388, 510; 392, 581; 404, 674; 406, 687; 436, 76; 453, 184; 454, 189; 456, 196, 198; 161, 227; 462, 229; 463, 233; 464, 240; 465, 244.
Srigárh, 374, 430.
Srikánta peaks, 346, 225-9.
Srikánd, 107, 49.
Srinágger, 400, 648.
Sripáda peak, 253, 169.
St. Loo, 330, 131.
Ste Ste glacier, 463, 234.
Striparmatúr, 233, 3.
Súa Garh, 384, 504.
Subramáni, *H.S.*, 218, 136.
Súd, 151, 40.
Suféd Kóh peak, 146, 2.
Suganhálli, 223, 155.
△ Súget, 453, 185.
Súget Daván pass, 426, 21.
Súget Daván peaks, 125, 14-15.
Suhár Dévi, 382, 494.
Sujhánpur, 389, 553.
Súka peak, 151, 47.
Sukavár Hokánni peak, 150, 35.
Súket, 385, 511.
Súkhi, 349, 246.
Súkne, 394, 600.
Súkri, 183, 203.
Sulaghérri hill, 239, 42.
Súlki, 218, 112.
Súlkun, 169, 74.
Súlle, 448, 153.
△ Sultán Chúskun, 454, 188.
Sultán Khél peak, 154, 69.
Sultángánj, 107, 49.
Sultánpur, *T.S.* and town, 125, 105; 381, 482.
△ Súmdo, 320, 72; 445, 137.
△ Súmgal, 453, 183.
Summer villages, 480–1.
Sun river, 351, 261.
Sundhukpho peak, 290, 158.
Súndur, 222, 151.
Súngnam, 410, 716.
Súni, 380, 474.
Súnnuk, 283, 118.
Súnsal, 388, 539.
Supín river, 362, 332.
Suprái peak, 149, 26.
Surajgárh, 383, 496.
Súrat, 190, 265; 201, 372.
Súrcha peaks, 370, 394-5.
Surdág peak, 151, 43.
Surhán ghát, 168, 69.
Súring, 324, 93.
Surkánda mountain, 358, 307.
Surtáng peak, 150, 32.
Súru, 459, 215.
Súru glacier, 462, 230.
Súru river, 459, 215.
Súru pass, 462, 230.
Susínia, *H.S.*, 105, 33.
Sutluj river, *see* Sátlej.
Sval river, 327, 113.
Svanái peak, 149, 23.

T

Ta Tso lake, 459, 210.
Tábhung peak, 108, 54.
Taddiandamóle, *H.S.*, 248, 137.
Tágla Gar river, 410, 710.
Tágria, *T.S.*, 144, 294.
Tagúna fort, 273, 28.
Taimbúrni, 219, 123.
Tákal ghāt, 190, 266.
Tákpār, 282, 111.
△ Tákbar Tsann, 383, 497.
Tākchám, 277, 62.
Tākchám peak, 279, 83.
Tákelang pass, 444, 134.
Takht-i-Sulaimán mountain, 399, 643.
Tákmāk, 208, 7.
Táksal, 383, 502.
Tákula, 326, 103.
△ Tākvoróma, 296, 195.
Talantpótha, *H.S.*, 240, 60.
Tal ghāt, 195, 313.
Taldénia, 250, 150.
△ Tálla Shállong, 315, 55.
Tállum Sámdong, 277, 64.
Tállung, 271, 13.
Tambakhána, 302, 232.
Tambarbótta peak, 245, 104.
Támbur river, 295, 183-4; 296, 187-92.
Támi Chúct glacier, 428, 29.
Támla Nálah, 107, 49.
Támlung, 278, 67.
Tánda, 178, 171; 337, 177.
Tángan, *T.S.*, 130, 152.
Tángi, *see* Grámang.
Tánglang pass, 310, 7.
Tángtse, 443, 131.
△ Tángu, 278, 72.
Tangvái, 110, 76.
Tánkra pass, 273, 34.
Tánkra peak, 274, 38.
Tanks, 185, 223; 186, 224; 210, 55; 211, 60; 218, 113; 220, 133; 225, 175; 226, 182, 183; 227, 189, 193; 228, 204; 230, 219; 232, 229; 234, 7; 279, 80; 395, 610.
Tánna, *see* Thánah.
Tap glacier, 428, 30.
Táppa ghāt, 201, 372.
Táppa bári ghāt, 183, 206; 201, 372.
Tápti river, 188, 247.
Taptiatók, 295, 182.
Tápur, 239, 40.
Taránda, *see* Tránda.
Tári pass, 413, 745.
Tári peaks, 414, 750-5.
Tarhárva, *T.S.*, 133, 184.
Tārkáni, *T.S.*, 131, 164.
Tasgáñ, 216, 99.
Tashigáng, 436, 72.
Táshing, 468, 262.
Táshing glacier, 429, 33.
Táskam, 463, 232.
Tassángsi castle, 272, 17.
Tassgóng castle, 271, 12.
Tassgóng peak, 271, 10.
Tassiding, 283, 117.
Tátipur, 387, 536.
Tátta Kúti peaks, 402, 655-6.
Tátta páni spring, 356, 290.
Taudmanár, *H.S.*, 198, 341.
Táuli, *T.S.*, 129, 148.
Tautiotemála peak, 248, 138.
Tavái, 183, 207.
△ Tázang, 432, 51.
Téshi Tóngze, 451, 201.
Teleskúdi, 221, 138.
Teliagárhi, 107, 49.
Tellichérri, 248, 139.
△ Témi, 281, 103.
Téndong mountain, 281, 103.
Tendukáira, 180, 188.
Téngling, 282, 108.
Teónda, *H.S.*, 175, 133.
Teór, 181, 192.
Térdāl, 219, 120.
Téri, 167, 57.
Téri Kúna málli, *see* Trinkomali.
Téria ghāt, 110, 73.
Tézpur, 102, 9.
Thakil mountain, 312, 28.
Thále La pass, 462, 231.
Thamiválá, 154, 71.
Thámsar peak, 387, 529.
Thána, *T.S.* and town, 129, 149; 203, 9.
Thánela, *H.S.*, 166, 39.
Thándu Bhováni, 375, 435.
Thankót, 301, 225.
Thánno, 359, 309.
Tharlaságar peak, 345, 216.
Thatváni spring, 392, 581.
Théme-ri peak, 270, 3.
Theóg, 375, 436.
Thigritáya peak, 102, 3.
Thlónok, 281, 97.
Thlónok peak, 280, 96.
Thomas mount, 232, 233.
Thomason college, 117, 26.
Thúi Déo mountain, 328, 122.
Thúngsi, 329, 130.
△ Tibel Maidán, 413, 745.
Tigáñ, 189, 252.
Tígra, 171, 96.
△ Tik Tik Chúmik, 464, 240.
Tikamgárh, *see* Téri.
Tíkar, 369, 385.
Tikbotáng, 277, 66.
Tikhiár peak, 401, 653.
Tíkiri, *T.S.*, 130, 163.
Tikoria, *H.S.*, 172, 109.
Tikrigáñ, 367, 370.
Tilabáni, *H.S.*, 141, 267.
Tíling, 439, 96.
Tíling peaks, 138, 86-7.
Tilla peak, 151, 46.
Tiloknáth, 393, 590
Tilótho, 167, 50.
Tímla, 314, 51.
Timli pass, 369, 389.
△ Tímti Do, 451, 171.
Tímti La pass, 451, 171.
△ Timtímma, 376, 449.
Tinpahár, 107, 49.
Tíns, *H.S.*, 176, 145.
Tínsmal, *H.S.*, 172, 110.
Tíri, 356, 288.
Tírla ghāt, 186, 226; 201, 372.
Tirtapálli, *H.S.*, 240, 53.
Tirupáti, 230, 221.
Tíse peak, 420, 2.
Tísum, 319, 71.
△ Tísum, 432, 52.
Títila, 310, 4.
Tólar Masjíd, 151, 70.
Tódi chu river, 438, 84.
Tódung peak, 407, 693.
Tók peak, 417, 148.
Tóka, 195, 314.
Tolachgódi, *see* Teleskúdi.
Tóling, 433, 56.
△ Tóling Dóra, 433, 54.
Toll-i-Unchát peak, 152, 49.
Tómo Chámo peak, 276, 51.
Tongáur peak, 384, 508.
Tónghan, *see* Yánkutang.
Tónglo mountain, 288, 150.
Tóngso castle, 272, 25.
Tons glacier, 355, 287.
Tons river, 165, 38; 354, 275; 355, 287; 357, 297; 358, 303; 359, 311; 367, 372.
△ Tónse, 432, 53.
Topichánchi, 140, 253.
Topikónda, *H.S.*, 198, 347.
Toremkér pass, 324, 89.
Tórna, 207, 33.
Totapélla peak, 249, 145.
Traill's pass, 323, 85.
Tránda, 367, 371.
Tráni, 159, 116.
△ Trátang, 439, 98.
Trees, various, upper limit of, 250, 147; 253, 169; 275, 50; 276, 50; 277,

61; 279, 79, 80; 282, 112; 283, 117; 285, 128; 288, 150; 289, 154, 157; 290, 158, 159; 300, 217; 319, 69; 332, 147; 333, 153, 155; 335, 165; 341, 202; 342, 206; 343, 211; 344, 212, 347, 235; 349, 242; 353, 272; 355, 285; 356, 290; 361, 323; 384, 505; 385, 514; 399, 647; 433, 56; 448, 153; 458, 204, 461, 226; 463, 231, 233; 466, 251; 467, 253, 255; 500.
Tréspon, 460, 219.
Trichinápalli, 237, 23.
Trijugi Naráin, 345, 222.
Trímbák, 194, 301.
Trinkomalí, 251, 155.
Tripassúr, 234, 4.
Tripétti, *see* Tirupáti.
Trissúl peaks, 325, 98-9.
Trivándram, 245, 103.
Trombay, 203, 6.
Tshi glacier, 461, 226.
Tsóbta, 339, 187.
Tso Gam salt lake, 442, 119.
Tso Gyagár salt lake, 443, 127.
Tsóji pass, 395, 610.
△ Tso Ka, 444, 135.
Tso Kar salt lake, 443, 130.
Tso Kŏr lake, 394, 598.
Tso Lánag salt lake, *see* Rákus Tal.
Tso Mápan salt lake, *see* Mansaráur.
Tso Mitbál salt lake, 441, 113.
Tsomognalarí salt lake, 441, 115.
Tsomoríri salt lake, 443, 125.
Tso Rul salt lake, 441, 114.
△ Tsríngma, 462, 230.
Tsúngar, *see* Hasóra.
Túlapur, 211, 58.
Tulbária, *T.S.*, 137, 218.
Tumragúdi, 223, 153.
Túng mountain, 384, 509.
Tung Lung pass, *see* Tákelang.
Tunḅára, 365, 355.
Tungabúdra river, 222, 144; 223, 154; 225, 176.
Tungnáth, 338, 182.
Túngrang pass, 410, 715.
Túngru mountain, 370, 401.
Túra, 169, 77.
Túral pass, 389, 555.
Túral peak, 389, 555.
Turér, *H.S.*, 176, 146.
Turgegárh peak, 152, 48.
Túrki, *T.S.*, 136, 216.
Turmakúrchi, 237, 29.
Túru peak, 147, 11.
Tutárna mountain, 390, 562.

U

Uchaláru peak, 353, 272.
Ucháli, 155, 80.
Udelgúri, 103, 10.
Uderpidrúg, *H.S.*, 225, 172.
Údepur, *T.S.* and town, 125, 101; 160, 119; 201, 372.
Udgír, 197, 334.
Ujén, 180, 189.
Úlli pass, 468, 261.
Úlli plain, 468, 261.
Ulíti Ār river, 251, 152, 153.
Umárpur peak, 132, 173.
Umási, 451, 169.
Úmra, *T.S.*, 125, 95.
Úna, 391, 579.
Úrcha peak, 408, 702.
Upaldíni, 222, 147.
Upper Námsang, 108, 56.
Úpshi, 446, 139.
Úran, 203, 5.
Urakónda, *H.S.*, 226, 186.
Urbétta peak, 245, 108.
Úrcha, 409, 706.
Úri, 350, 253; 404, 673.
Uskótta, *see* Hoskóta.
Ussílla, 358, 303.
Úta Dhúra pass, 317, 64.
Úta Dhúra river, 317, 64.
Utakamánd, 246, 114.
Utakamánd lake, 246, 114.
Útar Líssa, 406, 686.
Utiamáu, *T.S.*, 129, 145.

V

Vái, 210, 53.
Váiga river, 238, 37.
Váka, 459, 214.
Valankótta, *H.S.*, 242, 73.
Valamád, *H.S.*, 240, 54.
Valendarpét, 235, 11.
Vallanchún, 296, 194.
Vallanchún pass, 296, 196.
Válleh, 212, 69.
Váliksha springs, 455, 191.
Vándiu, 217, 106.
Vángi, 215, 90.
Vángtu bridge, 366, 367.
Vankúlvar hill, 211, 57.
Vapgáũ hill, 211, 59.
Varáda, 210, 50.
Várda river, 188, 248; 190, 268; 194, 305.
Várgáũ, 207, 36
Várhi, 211, 62.
Varóda, 192, 285.
Várri, 214, 81.
Varút, 212, 65.
Vásna river, 212, 67.
Vazirgárh, *see* Vódri.
Véheli peak, 391, 580.
△ Vélshia, 430, 46.
Vellúr, 235, 13.
Vellúr peak, 236, 13.
Vinchúr, 192, 289.
Vishnupreág, 331, 138.
Vishnupúri plateau, 185, 223.
Vódri, 357, 298.
Vóhab Chilgánc plateau, *see* Chilgáne.
Vonamálli ghāt, 231, 225.
Vontimétta, 229, 213,
Vórli hill, 203, 3.
Víllar lake, 401, 652.
Vurachmálla, *H.S.*, 241, 65.
Vuramalipét, 231, 223.
Vurítti, *H.S.*, 234, 6.

W

Waverley hill, 363, 340.
Whártu peak, *see* Háttu.
Wilson's bángalo, 250, 146.
Woodstock hill, 363, 340.

Y

Yálle, 448, 152.
Yállung river, 290, 159.
Yanám peak, 440, 105.
Yángma, 295, 181.
Yángma Guóla, 296, 190.
Yángma moraines, 295, 186.
Yángma peak, 295, 186.
Yangpúng, 287, 141.
Yangyadíng, 294, 175.
Yankúng, 278, 73.
Yánkutang, 294, 172.
Yárkand, 469, 265.
Yárkand river, 454, 191; 455, 191.
Yássa peaks, 304, 240-2.
Yélu, 209, 46.
Yelligáû, 195, 315.
Yemálle mountain, *see* Dílli.
Yénna river, 211, 62.
Yénna lake, 208, 37.
Yerhálli, 220, 128.
Yérla river, 215, 91; 216, 94, 95, 97, 98; 344, 213.
Yerrakálli, 239, 48.
Yerrakónda, *H.S.*, 227, 190.
△ Yeúmtso, 276, 54.
△ Yéunga, 277, 63.
Yömtóng, 275, 50.
Yóksun, 286, 133, 135.
△ Yúru Kióm, 449, 159.
Yurungkásh pass, 424, 11.
Yúsu pass, 363, 342.

Z

Zamáni peak, 155, 82.
Zamóli, 335, 167.
△ Zamsíri, 435, 62.
Záva Gárh peak, 147, 13.
Zebanván mountain, 398, 633.
Zián, 399, 645.
Zímu river, 279, 77; 281, 97, 101.
Zímu Sámdong, 279, 77.
△ Zinchín, 435, 61.
Zóchi, *see* Tsóji.
△ Zograu, 338, 180.
Zóla páni spring, 316, 55.
Zongchín, 135, 63.

III. ADDITIONAL REPORTS ON THE LAST JOURNEYS AND DEATH OF OUR BROTHER ADOLPHE.

A. Mr. Thornton's Report: I. Deposition of Murád. II. Opinion of the Civil Surgeon Lahór. III. Memorandum on a note of hand. IV. Analysis of the evidence hitherto obtained.

B. Recovery of Adolphe's last Journals: I. Lord William Hay's letter to H. and R. de Schlagintweit; II. Lord William Hay's official correspondence.

Our first volume contains (pp. 43—65) the official Reports that we were able to collect up to the end of 1860, about the fate of our unfortunate brother. Early in 1861, new and important evidence was brought to light, principally through the examination of Murád, a Jew from Bokhára, whom the late Colonel Irby, of H. M. 51st Regiment, had induced to come down to India.

At the instance of A. A. Roberts, Esq., the Judicial Commissioner of the Pănjáb, the examination was carried on by his personal Assistant, T. H. Thornton, Esq., who was supported in his laborious and difficult task by Colonel Laughton and Drs. Scriven and C. M. Smith. How ably these gentlemen have acquitted themselves of their melancholy duty will become apparent from the following memoir which they have drawn up on the subject.[1]

The observations of the writers are included in brackets, and printed in smaller type.

Just before the conclusion of this volume, November, 1861, we received important communications from Lord William Hay, whom we have already repeatedly had occasion to mention in connection with Adolphe's fate. It is owing to his exertions, that we

[1] The memoir was officially printed in the "Calcutta Gazette," May 22, 1861.

are now in the possession of our late brother's manuscripts, extending as far as August 11, 1857. This is only a short time before his death,[1] which occurred on or about August 26, 1857. The manuscripts reached us January 10, 1862.

A. REPORT BY T. H. THORNTON, ESQ., PERSONAL ASSISTANT TO THE JUDICIAL COMMISSIONER, PĂNJÁB.

As directed by the Judicial Commissioner, I have carefully examined the late Mr. Schlagintweit's servant, Murád, who accompanied Colonel Irby, of Her Majesty's 51st Regiment, from △ Súget. I have also, as directed, reviewed in connection with Murád's statement, the evidence contained in the correspondence received from the Pănjáb Secretariat Office, and I have further made some enquiries, with a view to test the probability of the skull produced by Murád, being, as alleged, that of Adolphe Schlagintweit.

2. The result is as follows:

The account given by Murád of the death of his late master is substantially the same as that given by Abdúllah, another servant of deceased, in his deposition taken at Lahór, in May, 1859, and tallies, except in one point, with the information sent by Mohámmad Amín, the deceased's principal servant, in his letter addressed to the Commissioner of Pesháur, from Kókand, in September, 1858.

3. The evidence of Murád, thus corroborated by the statements of two other witnesses, made at different times and under different circumstances, and corroborated, also, in its main facts, by other independent testimony, was given in a manner which impressed those who heard it with its truth. There would appear, therefore, every reason for accepting it as substantially correct.

4. From a review of all the evidence in the case, it would appear that Adolphe Schlagintweit, having arrived at △ Súget, was desirous of proceeding to Kókand, viâ Yárkand, a city within the confines of Chinese Tartary, which he was given to understand had been wrested from the Chinese by the forces of Kókand. He would seem to have been well aware of the perilous nature of his journey, for in a promissory

[1] See p. 536. We have to consider as a new proof of the general sympathy felt for the lamentable fate of our brother Adolphe, that the English as well as the Continental press did not fail at once to make known the recovery of his journals and to draw attention to their importance.

note given to his servant Murád, just before setting out, he alludes to the possibility of his never reaching Kókand alive, and he further took the precaution of dispatching his khánsamah, with his papers and heavy baggage, to Ladák, which have been duly received, and forwarded to Germany.

5. On arrival at Yárkand, he found that a border warfare was going on between a band of Kokándis, under one Dil Khan, or Zúllah Khan, one of a race of Sáyad chieftains, who under the guise of religion make periodical raids into the Chinese territory. He was well received by this chieftain, but the state of affairs, or according to Abdúllah and Murád, the most minute of the narrators, a successful attack of the Chinese, upon the camp of Zúllah Khan, led Mr. Schlagintweit to proceed to Káshgar, which was then in possession of another more powerful Sáyad chieftain by name Váli Khan, and honoured with the title of Pir, or Saint, who had for a time wrested it from the Chinese.

6. He proceeded—apparently without suspicion—to the court of this chieftain; and sent his servant Mohámmad Amín, to announce his arrival, and meanwhile pitched his tent close by. Shortly after Mohámmad Amín's return, a person came over from the chief's camp, and commenced making an inventory of deceased's goods, and according to Abdúllah demanded his arms, which were given up. Adolphe Schlagintweit upon this went, or was forced to go, into the chief's camp, and would appear to have remonstrated against what was being done; on which he was summarily beheaded, and his servants seized. Abdúllah was sold as a slave, and eventually found his way to Pesháur. Mohámmad Amín was shortly afterwards released and went to Kókand, where he is now. Murád, the Jew, saved himself from death by turning Mussálmán, and was also released about a month afterwards on the Chinese re-capturing Káshgar.

7. There appear no adequate reasons to warrant the imputation of treachery against any of the deceased's servants. The rumours to that effect said to be current among Yarkándi merchants, and on the Kashmír border, may, I think, be explained by the tendency which all Asiatics have to presume treachery, as a matter of course, in such cases, and by the known hostility of the Kashmír authorities to Mohámmad Amín. As far as can be judged from the evidence, the deed appears to have been the sudden act of a fanatical marauding chief.

8. With regard to the skull produced by Murád as that of the deceased, it would appear from a consideration of the circumstances under which it was obtained, the

report of Dr. Smith, Civil Surgeon, of Lahór, who, in company with Dr. Scriven, Principal of the Lahór Medical College, made a careful examination of it, and lastly the opinion of some who have seen the deceased, there can be little doubt that the skull is *not* that of Mr. Schlagintweit.

9. From Murád's statement it would appear that he did not obtain the head for upwards of ten months after the deceased's death; he cannot say whether the person from whom he obtained it found it himself; it was found among a number of other heads of persons killed in a fight which must have taken place about a month after Mr. Schlagintweit's death; hence, *a priori*, the chances against its being Mr. Schlagintweit's skull are very great; besides, from Dr. Smith's report it would appear that there are indications that the skull belonged to a man who had his head shaved: whereas Murád expressly states that the deceased, though he wore his hair short at the time, certainly had not his head shaved. The teeth, moreover, are apparently those of a man of greater age than the deceased, and are so peculiar that they must have formed a prominent feature. Yet, none of those who remember the deceased, with whom I have communicated, recollect any such peculiarity. Lastly, the hair on the skull is stated by Dr. Smith to be of the colour of that of natives of the country, whereas Mr. Schlagintweit's hair is said to have been lighter.

10. With reference to the above is annexed:

I. A copy of Murád's deposition (with notes).

II. An examination of a skull by Dr. Smith, Civil Surgeon at Lahór, assisted by Dr. Scriven.

III. Memorandum on a Note of Hand purporting to be that of the late Mr. Schlagintweit.

IV. An analysis of the evidence in the case.

11. With regard to the deceased's property, there can be no doubt that the book and case containing a mathematical instrument belonged to him; it appears, however, according to Murád's evidence, and the statement of the man Áhmad, that there is some more property of the late Mr. Schlagintweit in the possession of some persons at Sánchu, in the Yárkand territory. Colonel Irby, it appears, urged the thanadár at Leh to use his exertions to recover this property, but the thanadár's exertions would probably be stimulated, if the Kashmír authorities (his superiors) were addressed upon the subject.

12. Another point arises in connection with this enquiry, on which some remarks appear necessary; I mean the claim which Murád, should he be considered free from suspicion, has upon the Government. He holds a promissory note for rupis 3,600, in the hand-writing of deceased, dated 3rd July, 1857, on account of 300 "seklow, or white fur skins." This amount, the writer of the note requests, may, in the event of his death, be paid from the Kángra Treasury. From the note it would appear that the greater portion of these goods was made over to the missionaries of Lahól for sale, but it does not appear what has become of them. I have addressed a letter to the missionaries at Lahól, but as the matter does not affect the main object of this enquiry, I have not delayed this report until the receipt of a reply.

13. In addition to his claim for rupis 3,600 upon this promissory note, he would appear to deserve, should he be considered free from the imputations of treachery, some compensation for the trouble of coming down to Lahór, and losing his avocation as silk merchant; and further for the hardships he has undergone in consequence of his faithful service to the deceased. I may mention that Colonel Irby has advanced him rupis 50 towards the expenses of his journey, and has stood security to the amount of rupis 198 for debts due by Murád to one Bála Sáhib, a merchant of Leh; consequently, out of any sum awarded to Murád, rupis 248 should be made over to that officer.[1]

I. Deposition of Murád, a Jew, Native of Bokhára, but Settler in Káshgar, by Profession a Silk Manufacturer.

Mr. Schlagintweit engaged me in Kúlu, four years ago, to go with him to Kókand, together with Mohámmad Amín of Yárkand (who introduced me to the Sáhib), Abdúllah, a Kashmíri, and four other servants, one of them a múnshi; but I do not know their names.

[The múnshi must have been Mohámmad Hássan, who afterwards abandoned Mr. Schlagintweit on the march, as detailed in Abdúllah's statement].

We started in the early spring from Kúlu and arrived eventually at △ Súget. One march from △ Súget, all Mr. Schlagintweit's horses were stolen. Mohámmad Amín and myself went to look for the horses and recovered eleven. I went on to Kílian, the first village in Chinese Territory, and there met some Badakhsháns, who told me

[1] By order of the Government, Murád was paid the amount of the promissory note (3,600 rupis), and received a reward of 200 rupis. The sums advanced by Colonel Irby to Murád, were repaid to this officer.

that Yárkand was in a state of anarchy. I, therefore, returned and advised the Sáhib not to go there. Some twenty days afterwards, other merchants came from Yárkand, and informed us, that Váli Khan had conquered Yárkand and Káshgar. So the Sáhib went on from △ Súget to Kílian, where he gave me a letter addressed to one of Váli Khan's adherents, in Kárgalik, by name Háji, who almost immediately discovered the thieves, and produced the stolen property, and sent a fine Turki horse as a present to the Sáhib.

[The truth of this statement is corroborated in a remarkable way by the statement of one Káttah Áli Shah, who was at Kárgalik at the time, made to Mr. Knox in October, 1858. He mentions that the thieves came and offered some suspicious property for sale in Kárgalik, and that the fact was reported to Háji Míster, the Kardár. That the property turned out to be that of a Sáhib, &c. This explains how the Háji was enabled to produce the thieves and stolen property so quickly.]

The Sáhib staid three days in Kárgalik, and treated the Háji for a sabre wound which he had received in a quarrel. The Háji was very grateful for this, and wished to put the thieves to death, but the Sáhib persuaded him not to do so.

[This circumstance may have given rise to the rumour that Mr. Schlagintweit was executed for interceding for some captives.]

From Kárgalik we went to Yárkand, where we found fighting was going on between Tíla Khan (called by Abdúllah "Dil, or Zúllah Khan") and the Yarkándis. The Khan was a Lieutenant of Váli Khan at Káshgar. Tíla Khan received the Sáhib kindly. I was not present at the interview, having remained with the tents about half a *koss* off, but I heard from Mohámmad Amín that the Sáhib presented Tíla Khan with a telescope, a sword, and other articles. Tíla Khan was much pleased, and asked the Sáhib whether he thought the Chinese could take his position—the Sáhib replied that he was not a soldier, but merely came for a peaceful interview. About two hours after the interview, the Chinese forces attacked Tíla Khan, and drove him away, and the Sáhib retreated too, and proceeded to Káshgar, which is six days' journey from Yárkand, to join the camp of Váli Khan, who, he heard, was supreme in those parts. One march from Káshgar, Mr. Schlagintweit sent Mohámmad Amín with some shawls and silk as presents to Váli Khan. The next day Mr. Schlagintweit encamped by the camp of Váli Khan, about a *koss* from the town, Mohámmad Amín here returned, and was followed shortly afterwards by a múnshi, sent by Váli Khan, who proceeded to take a list of the property which was contained in four boxes,

two large and two small. I do not know whether the Sáhib objected to this proceeding, as I was with the horses, but he shortly afterwards proceeded to Váli Khan's camp, accompanied by Mohámmad Amín and Abdúllah, and another servant, a Tibetan, whose name I do not recollect.

[This accounts for the fact that Abdúllah's report of deceased's death is more minute than that of Murád.]

Just at this moment, one of the Sáhib's horses got loose; it was the horse the Háji had given him, and I went, by the Sáhib's order, to secure it. A few minutes afterwards I heard a disturbance, and was myself seized by three men, who tied my hands. I looked towards Váli Khan's camp, and saw the Sáhib lying with his head cut off. Mohámmad Amín, Abdúllah, and the Tibetan servant were also seized, and taken with me into Káshgar. I do not know why the Sáhib was killed, but I heard at the time that it was because he refused to pay duty upon his goods. I remained in Káshgar a prisoner about a month. Abdúllah was shortly afterwards sent for by the Khója Váli Khan, and did not return; the Tibetan servant was put to death. I was threatened with death unless I turned Mussálmán, which I did. After about a month, the Chinese drove out Váli Khan from Káshgar. On this occasion Mohámmad Amín made his escape and went to Kókand, in order to complain to Khudayár Khan, Khan of Kókand, of the treatment they had received from Váli Khan. I was released by the Chinese, and remained in Káshgar, where I carried on my trade of silk manufacture.

About ten months after this event, I heard that a certain barber, whose name I forget, had in his possession the skull of Mr. Schlagintweit. I went to him and recognized the skull as Mr. Schlagintweit's, by the peculiarity of the teeth. I cannot say whether the barber found the skull himself, but he told me he found it among a number of bodies of men who had been killed in an engagement which took place about a month after Mr. Schlagintweit's death, and it was his custom, after a fight had taken place, to attest the skulls of those killed and dispose of them to their friends. I gave the sum of twelve tílas (72 rupis) for the skull.

CROSS-EXAMINATION.

Mohámmad Amín never made over the remains of Mr. Schlagintweit to me.

Mr. Schlagintweit did not shave his head, or attempt to conceal that he was an European; he had light hair.

[Dr. Smith states that the skull produced is the skull of a person who habitually shaved his head.]

The book and case, I now produce, were portions of the deceased's property. I bought them from a person in Káshgar.

[The book is a German work on Geography entitled — "Die Erdkunde im Verhältniss zur Natur und Geschichte des Menschen;" it bears no name.[1] The case contains a mathematical instrument, apparently a kind of protractor.]

I have no other property of the deceased; but about two months before his death, he left some property at Sáyad-Úlla Khója, with three men of Sánchu in Yárkand, named Máksum, Shámur, and Míssa.

[This property was seen by Áhmad Árgon, who was sent to enquire after deceased's effects and death at the end of 1858, and the possessor offered to give it up for seven battis of opium.]

While I was in Káshgar I made numerous enquiries and wrote to persons in Andishán, Kókand, and Margilón, but could get no trace of other property. The promissory note I produce was given me by Mr. Schlagintweit at △ Súget, just before we started from that place. He gave it to me because I was very anxious about some "Sagábi" (beaver, or other skins) which I had brought up with me from Dehli, but had been forced to leave behind. The Sáhib, therefore, to make me easy, agreed to take them off my hands. The following is a copy of this note:—

"This is to certify that I owe to pay the bearer Murad, Jehoodee from Bokhara, for 300 Saklows, or White Fur Skins, on account of Government, the sum of gold Tillas of Kokand (being about 6 Rupees each) 600, six hundred Tillas, the Seklows, which could not be carried along with me, having been made over to me in Lahoul for sale at Ladakh. (The profits of this sale, confided by me to the care of the Reverend Missionaries stationed at Lahoul, will be made over to Government hereafter.) I pledged myself to pay the bearer the price of the Seklows as it is in Yarkund, &c. The money to be paid by me at my arrival in Kokand, or in the case of my death, by the Kangra Treasury."

ADOLPHE SCHLAGINTWEIT,
In charge Magnetic Survey of India.

Camp Suget; Karakorum road, the 3rd July, 1857.

[1] It is "Ritter's Erdkunde," a book so full of general information, that we constantly carried it with us during our travels.

I did not go to Kángra with this bill after my release because it was currently reported that the British rule in India had been overthrown. About a year afterwards I sent information to Tári Chand in the British territory. [This is true.] But I could not come myself, because I was in debt.

Mohámmad Amín is still, I believe, in Kókand, and is willing, I believe, to come in, if sent for. I have heard that Mohámmad Amín petitioned Khudayár Khan, the Khan of Kókand, that his master had bought a large amount of valuables and telescopes for a present to the Khan, but that Váli Khan had robbed him of them and killed the Sáhib. In consequence, the Khan of Kókand summoned Válī Khan, who denied the charge; the Khan imprisoned him, but as he was a Sáyad he was afraid to do any thing more, and released him.

I have never heard that Mohámmad Amín is living in great wealth. He was a wealthy man once, but I have every reason to believe that he has, like myself, been living in poverty, and that both he and I have been ruined in the ruin of our master.

I make no claim upon the Government, except the payment of the note of hand, and any thing more it may be pleased to give me.

I have heard of the name "Búzruk Khan." He is a Sáyad chief, like Váli Khan; he had nothing to do with the death of Mr. Schlagintweit, but was at Kókand at the time.

[This explains the origin of the account obtained by the Russian authorities, *viz.* that the deceased was killed by one Búzruk Khan. The fact that the murder was effected by a Sáyad chief will easily account for its being currently fixed by report upon Búzruk Khan, who answered to the description of Sáyad Chief, and whose character probably justified the imputation.]

Murád's deposition was originally taken, as directed, in the presence of Colonel Irby, but I examined him subsequently on several occasions upon points which occurred to require elucidation. His deposition, given above, differs in some points from the account given by Colonel Irby in his letter to Government, but I have questioned him closely upon the points where his present statement differs from that given in Colonel Irby's letter, and I am disposed to think that the present is a correct record of his evidence. Colonel Irby mentioned to me that it was probable that in some cases Murád's meaning had been misrepresented to him.

II. Opinion of the Civil Surgeon, Lahór, dated 23rd November, 1860.

"After very carefully examining the skull you sent me, I have come to the conclusion that it is *not* that of an *European*, and, certainly not that of the late

Mr. Schlagintweit; and I form my opinion from the following circumstances:—The scalp is that of a man who was in the habit of having his head shaved. The hairs that remain are short and bristly, and of a black colour, resembling that of a native of this country. The teeth are worn in a peculiar manner, and indicate an age of between thirty and forty years, which is, I believe, considerably older than the late Mr. Schlagintweit was at the time of his death.

The configuration of the skull is not typical of European origin.

It is evident that the man was decapitated, as part of the mastoid forcep on the right side is sliced off, as well as the first vertebræ being cut in two, and there is also a mark of a talvár cut on the occiput."

III. MEMORANDUM ON A NOTE OF HAND PURPORTING TO BE THAT OF THE LATE ADOLPHE SCHLAGINTWEIT, FORWARDED WITH COLONEL LAUGHTON'S LETTER DATED JANUARY 2, 1861.

From a comparison of the hand-writing of this "note of hand" with the hand-writing of that produced by Murád, and specimens of deceased's hand-writing existing in the Secretariat Records, there can be no doubt that this note of hand was written by Adolphe Schlagintweit.

I have examined Murád, the Jew, respecting the circumstance of this loan. He informs me that Dáda Boy, from Margilón, kept a shop in Yang Híssar, a town in the Chinese territory, between Yárkand and Káshgar, and about two marches from the latter place. That Adolphe Schlagintweit, on his retreat from Yárkand, passed through Yang Híssar, *en route* to Káshgar. There, being in want of money, he applied to Dáda Boy, with whom Murád had some acquaintance, for an advance. On Murád's recommendation, Dáda Boy advanced Mr. Schlagintweit four hundred tángras, in lieu of which Mr. Schlagintweit promised to pay 12 tílas, and gave a note of hand for the amount.[1] (In the note of hand only 10 tílas are mentioned.)

That the value of the tíla in that place is about 7 rupis. (In the note of hand given to Murád, Mr. Schlagintweit values the tíla of Kókand at 6 rupis.[2]) He adds

[1] By order of the Government, 140 rupis have been paid for this "note of hand," a sum equal to double that mentioned by Adolphe.

[2] In the summer of 1856, when we (H. and R. de S.) were in Turkistán, the tíla, a very fine gold coin, was valued at 6 rupis.

that this took place about six or seven days only before deceased's death. The note of hand[1] is dated August 19, 1857. Hence, we are now enabled to fix, within a day or two, the date of Mr. Schlagintweit's death, which must have taken place

on or about the 26th August, 1857.

I take this opportunity of stating that I have observed in the *Hurkaru* newspaper a copy of a statement made by one Khunj Khan to Mr. Johnson, Civil Assistant of the Great Trigonometrical Survey of India, regarding the circumstances of Mr. Schlagintweit's death. His statement corroborates the opinion I have expressed as to the complicity of the servants of deceased in their master's death. His account tallies generally with that given by Murád, but differs in the following points:—First, he states that the Kokándis before Yárkand were commanded by Váli Khan, whereas, according to Murád's account, confirmed by other accounts, they were commanded by one Zúllah, or Dil Khan.

In the second place, he states that Mr. Schlagintweit was not put to death until the day after he was taken prisoner by Váli Khan. Of these discrepancies I would remark that Khunj Khan does not expressly state that he was an eye-witness of what he relates. Murád, whom I have examined on the point, expressly denies that he was present, but affirms that Khunj Khan was employed by Mohámmad Amín as a servant after the event, and hence obtained his information.

If Khunj Khan obtained his evidence by hearsay, these discrepancies may be easily accounted for.

IV. Analysis of the Evidence hitherto obtained regarding the Death of Mr. Schlagintweit.

The following is the evidence obtained regarding the circumstances of the death of Adolphe Schlagintweit. We have:

First.—The personal evidence of three professing eye-witnesses, persons known to have been deceased's servants, *viz.* that of Abdúllah, Mohámmad Amín, and Murád.

Secondly.—The *hearsay evidence* of the following:—

1. Of Máni, who obtained most of his information from one Núrpur, who was at Yárkand during the time.

2. Of Káttah Áli Shah, who was at Kárgalik and saw deceased there in July, 1857.

[1] It is to be borne in mind, that this "note of hand" is quite independent of the "promissory note" mentioned p. 533.

3. Of the leader of a caravan (obtained viâ Russia.)

4. Of one Mándas, who heard what he states from Hári Chand (through Tári Chand), Thákur of Gúndla, a village in Lahól.

5. The report of Hári Chand (November, 1859).

6. Report of Áhmad, &c.

The evidence of the three personal attendants was obtained under the following circumstances:—That of Mohámmad Amín is contained in a letter addressed to the Commissioner of Pesháur from Kókand, dated July 29, 1858. That of Abdúllah was given at Pesháur in December, 1858, and subsequently at greater length at Lahór, in May, 1859. That of Murád has just been recorded. The evidence of these three eye-witnesses, taken under different circumstances and at different times, tallies so completely on all important points, that it would be almost waste of time to examine other evidence, were it not that of late it has been hinted that Mohámmad Amín and probably Murád were implicated in the murder of their master, by betraying him into the hands of the chief who put him to death. It will be seen, however, that not only does the evidence of these three eye-witnesses tally, but that their evidence is corroborated, in the main points, by hearsay evidence, some of which is traceable to the vicinity of the locality where the tragedy occurred, and in some collateral points by the independent testimony of having personal knowledge of the facts to which they depose. Having first, therefore, endeavoured to show the trustworthiness and reliability of the account given by the deceased's personal servants, from a comparison of those accounts with other independent testimony, I shall proceed to examine into the charges brought against Mohámmad Amín and Murád, of complicity in the deceased's death.

The agreement in the several reports of Mohámmad Amín, Abdúllah, and Murád, may be seen at once by reading their accounts side by side.

Mohámmad Amín.	Abdúllah.	Murád.
Mr. Schlagintweit went to Yárkand against his (Mohámmad Amín's) advice. (Mohámmad Amín does not allude to the robbery of Mr. Schlagintweit's horses.)	Mohámmad Amín dissuaded Mr. Schlagintweit from going to Yárkand. Mr. Schlagintweit's horses stolen shortly after starting for Yárkand.	One march from △ Súget, all Mr. Schlagintweit's horses were stolen.
	Mohámmad Amín and the Jew servant (Murád) sent in quest of the horses and recovered seven.	Mohámmad Amín and myself went to look for the horses and recovered eleven.

Mohámmad Amín.	Abdúllah.	Murád.
Murád sent to report upon the state of things in Yárkand.	At Shúimla Khója, Mohámmad Amín dispatched his servant Murád to bring information of the war going on there.	I went on to Kílian and have met some Badakhsháni, who told me that Yárkand was in a state of anarchy. I therefore returned and advised the Sáhib not to go there.
Murád returned and reported that the Khan of Kókand had wrested from the Chinese the provinces of Káshgar and Yárkand.	Murád reported that the Khan of Kókand was making war upon the Chinese.	
Mr. Schlagintweit proceeds to Yárkand. The inhabitants of Yárkand treat Mr. Schlagintweit with courtesy, and Mr. Schlagintweit gave the chief men presents.	On this report, and on the assurance of certain merchants, Mr. Schlagintweit was induced to proceed.	Some twenty days afterwards, merchants came from Yárkand and informed us that Váli Khan had conquered Káshgar and Yárkand, so the Sáhib went on to Kílian.
	Mr. Schlagintweit proceeded to Kárgalik (it is strange that neither Mohámmad Amín nor Abdúllah allude to the interview with Háji Míster) and thence to Yárkand. When Mr. Schlagintweit reached within three *koss* of Yárkand, Zúllah Khan, who was warring with the Chinese, came to Mr. Schlagintweit himself and brought him bread and tea.	Murád sent on from Kílian to Kárgalik; interview with the Háji. Went to Yárkand, where we found Zúllah Khan fighting with the Yarkándis. Zúllah Khan received the Sáhib kindly; also made handsome presents to the chief
From thence proceeded to Káshgar, which was then occupied by a Khója of Kókand. The Chinese forces were encamped outside the town, and laid siege to a fort called Gul Bagh, situated about a mile outside the town.	In the mean time some 40,000 or 50,000 Chinese troops opened out of the City and attacked Zúllah Khan. Zúllah Khan gave Mr. Schlagintweit a passport to Káshgar. Mr. Schlagintweit accordingly proceeded thither and found Zúllah Khan fighting outside the town in co-operation with Váli Khan, who had taken possession of the town a short time previously. [This appears strange, but it is possible that Zúllah Khan stole a march upon Mr. Schlagintweit, arrived at Káshgar before him, and was co-operating with Vali Khan when he arrived.]	About two hours after the interview, the Chinese forces attacked Zúllah Khan and drove him away. The Sáhib retreated too, and proceeded to Káshgar to join the camp of Váli Khan, who was supreme in those parts.

Mohámmad Amín.	Abdúllah.	Murád.
The fight was going on when we arrived. The Mussálmáns asked who we were.—Mr. Schlagintweit replied that he was the Hon'ble East India Company's Envoy, and was going to the Khan of Kókand.	Mr. Schlagintweit sent word to Váli Khan that he desired to see him. He ordered him to wait in a tent. Half an hour afterwards a múnshi of his came and demanded arms from Mr. Schlagintweit, which were given up. His sipáhis came afterwards and seized me. Mr. Schlagintweit expostulated, so they seized him.	Mr. Schlagintweit sent Mohámmad Amín with presents to Váli Khan, and the next day encamped by him.
Upon this they got in a rage and ordered Mr. Schlagintweit to be beheaded.	They carried him about three hundred paces, stripped him, and cut off his head with a sword.	Mohámmad Amín here returned, and was followed shortly by a múnshi, sent by Váli Khan, who proceeded to take a list of the property.
		Mr. Schlagintweit went to Váli Khan's camp with Mohámmad Amín and Abdúllah. Shortly after, Murád found himself seized and saw the body of his master, who had been beheaded.
I with my followers were thrown into prison and plundered of all our property.	They took me captive to Káshgar. There I was sold away to a party who sold me to another till I reached Pesháur.	Mohámmad Amín, Abdúllah, and the Tibetan, were also seized and taken with me into Káshgar.
In thirty-five days of our confinement my two servants died, and the third was missing.	[He was sold as a slave for 25 rupis to a man called Túzak; a Sáyad of Pesháur, by name Mián Khalíl, procured his freedom, by paying to Túzak 25 rupis.]	Abdúllah was shortly afterwards sent for by the Khója Váli Khan, and did not return. After about a month, the Chinese drove out Váli Khan from Káshgar. Mohámmad Amín escaped to Kókand, and I was released.
Meanwhile the Khatáis (Chinese) having been reinforced, overpowered the Khója and obliged him to fly. I, consequently, got my release, and went to Kókand.		
Placed the remains of Mr. Schlagintweit in charge of Murád.		Found Mr. Schlagintweit's skull in the possession of a barber, ten months after this event.

It will be seen from a perusal of the above, that the accounts of each corroborate and confirm each other in material points, while some are fuller in details than the other, on points which appear to have come more particularly under their observation. Murád, it appears, is very minute in his account of the mode by which Mr. Schlagintweit's stolen property was recovered. This is explained by the fact that he was, according to the testimony of Abdúllah, sent on a special mission, during which he managed to effect the recovery of the stolen property.

Again, Murád is less minute than either Mohámmad Amín or Abdúllah in detailing the circumstances of Mr. Schlagintweit's death, but he quite incidentally accounts for this by saying that Mohámmad Amín and Abdúllah accompanied Mr. Schlagintweit to the camp of Váli Khan, where deceased was beheaded, while he was engaged in catching a stray horse.

It is true, Mohámmad Amín omits one or two important incidents mentioned by the two others, as the robbery of Mr. Schlagintweit's horses, and he does not allude to Zúllah Khan, or to Mr. Schlagintweit's flight from Yárkand, but it must be remembered that Mohámmad Amín's evidence is contained in a letter, and is not the result of a searching examination.

The only discrepancy of any importance is that relating to the remains of Mr. Schlagintweit. Mohámmad Amín states he placed them with Murád: Murád denies this, and states that he did not find them till ten months afterwards. On this point, however, Mohámmad Amín has not been questioned, and it is very likely to be nothing more than a loose statement, prompted by a desire to show his devotion to his master.

I now proceed to notice how far these reports are corroborated by other testimony.

Káttah Áli Shah, in his deposition taken by Mr. Knox in September, 1858, mentions from personal knowledge the interview of Mr. Schlagintweit with the Háji at Kárgalik, though he differs in his details from Murád. He alludes to Mr. Schlagintweit going to Zúllah Khan's camp; to the battle which ensued, the defeat of Zúllah Khan, and Mr. Schlagintweit's retreat. Máni (January, 1859) states that he heard from a person who was at Yárkand at the time of the arrival of Mr. Schlagintweit in these parts, while war was going on between the Chinese and Yarkándis, of his being first well received by the former, and accompanying them to Káshgar, where he was put to death by them.

In the report furnished by the Rájah of Bissér, Mr. Schlagintweit is represented as proceeding from Yárkand to the camp of "Bul Khan," who put him to death at Káshgar.

The reports of Hári Chand and Ahmad, who were despatched at the close of 1858 to make enquiries, are not before me in full, but they would appear to agree in the principal facts.

The chief points in which these hearsay reports differ from those of the eye-witnesses are in confounding Dil Khan, or Vállah Khan, and Váli Khan, who are different persons, and in accounting for the immediate cause of deceased's death, in regard to which, as might be expected, each hearsay account has a new story.

It may be asserted, therefore, with confidence, that the account we now possess of the circumstances of deceased's death, derived from the statements of his servants, is substantially correct.

Mr. Thornton concludes his interesting report on the fate of Adolphe by a detailed examination into the charge made against Mohámmad Amín and Murád of complicity in our brother's death. Murád, though personally known to us, was never in our service. Mr. Thornton says about him: "I cannot but express my conviction of his entire innocence; he is entitled to credit and reward."—With reference to Mohámmad Amín, we have already stated (Vol. I., p. 39), "that, as far as we are able to judge, no blame whatever can be attached to him in connection with the murder of our brother."

Mr. Thornton has also arrived at this conclusion.

B. RECOVERY OF ADOLPHE'S LAST JOURNALS.

I. LORD WILLIAM HAY'S LETTER TO H. AND R. DE SCHLAGINTWEIT.

SRINÁGGER, Kashmír, Sept. 9, 1861.

You will be glad to learn, that I have at this moment in my possession your brother Adolphe's note-book, with 135 pages closely written notes in it.—Then also a skull alleged to be his. I attained the things in this way:

When at Leh, a Persian, named Mírza Ábdul Vadád, came to me and stated, that in a caravan shortly expected at Leh, there was a parcel for him containing your brother's skull and his note-book. He said that he had no money, that consequently the caravan people would not give up the parcel. I sent a Tartar servant of mine with the Mírza on the road to Yárkand with instructions to get a hold of the parcel and bring it me as quickly as possible. About seven marches from Leh they met the caravan. The man in charge of it at first refused to give up the parcel,

demanding 200 rupis for its carriage. Eventually they were induced to give it up on my servant giving them six gold mohurs—all he had with him.

Last night, he and the Mírza reached Srinágger.

The note-book was purchased by the Mírza from a man of Káshgar, named Kărím Khan, into whose possession it seems to have come quite accidentally.

The journal extends from June to August 11, 1857.

With respect to the circumstances attending his death, the Mírza's account entirely corroborates the accounts given by the Kashmíri Abdúllah[1] and Mohámmad Amín.[2] The Mírza states, that your brother was beheaded by order of Váli Khan, that the head was hung up over a bridge, and removed then to a tree, that a person of the country, some months after, who happened to be growing melons under, or at least near the tree, buried the head in the ground. This man pointed out the spot to the Mírza; who dug up the ground and found the skull.

I am naturally sceptical with respect to the identity of the skull, the more so after the former attempt made to palm off a skull as that of your poor brother, which, however, proved to be that of a native.

The Mírza, who is certainly a very respectable, and, as far as I can judge, a trustworthy man, declares his conviction, that the skull is that of your brother. He says the melon-grower at once pointed out the spot where it was, and neither asked nor received any reward for so doing.

[1] See Vol. I., p. 59. et seq. [2] Vol. I., p. 63, et seq.

II. LORD WILLIAM HAY'S OFFICIAL CORRESPONDENCE.

From

LORD WILLIAM HAY

to

THE SECRETARY TO THE GOVERNMENT OF THE PANJÁB.

DATED SEPT. 14, 1861.

I have the honour to report, for the information of His Honour the Lieutenant-Governor, that I have at this moment in my possession the Journal of Mr. Adolphe Schlagintweit, who, His Honour doubtless recollects, was so cruelly murdered at Káshgar, in 1857. I have also what is alleged to be his skull.

2. On my arrival at Leh, in August last, one Mírza Ábdul Vadád, a man of Herat, presented himself at my tent, and stated that in a caravan expected shortly at Leh from Yárkand there was a parcel to his address, containing a manuscript book which belonged to the gentleman who was put to death at Káshgar, as well as what he fully believed to be his skull. The Mírza represented himself to be entirely without funds and despaired of ever recovering the parcel from the men in charge of the caravan.

I lost no time in despatching the Mírza with a Tartar servant of mine towards Yárkand, with instructions to recover the parcel, paying for its carriage, and to follow me with as much speed as possible to Srinágger.

3. About seven marches from Leh they met the caravan. The persons in charge at first positively declined to give up the parcel, they then demanded 200 rupis, eventually they agreed to take six gold mohurs, worth 17 rupis each, all the money my servants had with them. The Mírza and servant at once started for Srinágger, which they reached with the precious parcel a few days after myself.

4. The Mírza's account of himself is that he left Herat about five years ago in consequence of the disturbed state of the town, and has been wandering ever since in the countries between Afghanistán and Yárkand, in the guise of a hakim, or physician. At Bokhára he heard of the death of Mr. Schlagintweit. Aware of the

value which would be attached by us to any books, papers, &c., belonging to the unfortunate traveller, the Mírza on his arrival at Káshgar, set diligently to work to search for his property. For a long time he was unsuccessful, but about sixteen months ago he contrived to procure, through one Kărím Khan, son of a Múlla or priest of Káshgar, a manuscript book, which a dealer in snuff had bought for the sake of the paper, which he used in packing small quantities of snuff. Something less than one rupi was paid for the book.

Not long after, a cultivator informed the Mírza that after Mr. Schlagintweit was put to death his head was first suspended over a bridge and then placed in a tree under which he happened to grow melons, and that he buried it in his field. The Mírza dug up the ground, which was then covered with snow, at the spot indicated, and found a skull of the murdered man; but I am not very sanguine in the matter, and shall not be certain as to its genuineness till I have submitted it to a competent judge. The book contains 135 pages of closely written notes in the German language, and is Mr. Schlagintweit's Journal[1] from the 14th of June to the 11th of August, 1857, the day he started from Kárgalik, a village about fourteen miles on the Ladák side of Yárkand.

5. With regard to the manner of his death, the Mírza's account agrees in every material point with that given by Kashmíri Abdúllah, and published in Messrs. H. and R. de Schlagintweit's printed circular.

On arriving near the city of Yárkand, Mr. Schlagintweit found it closely besieged by a robber chief, or "crescentader", of Kókand, named Dílla Khan. By this man Mr. Schlagintweit was made a prisoner. Almost immediately after, Dílla Khan was compelled by the Chinese to fall back on Káshgar, also a Chinese town, but which had been occupied by another "crescentader" of Kókand, named Khója Váli Khan. Mr. Schlagintweit continued a prisoner in the hands of Dílla Khan and was brought to Káshgar. On reaching a spot not more than 200 yards from the tents of the Khója Váli Khan, one of Mr. Schlagintweit's guard went to inquire of him what was to be done with the "Feringi." The Khója, who is described to be a man of infamous character, at once ordered his execution. The persons entrusted with this work endeavoured to bind Mr. Schlagintweit's arms, but this indignity he successfully resisted; a blow was then struck with a sword, which took effect under his right ear,

[1] It reached us safely and in excellent condition, January 10, 1862.

another was aimed at the left side of his head, but neither proving fatal, his throat was cut with a knife, which one of the executioners drew from his side. The head was then severed from the body and hung up over a bridge.

The Khója was soon after driven out of Káshgar by the Chinese, and is now wandering about a miserable drunkard without a single follower.

6. With reference to the above narrative, I think it right to mention that it does differ in one or two points from the account given by intelligent persons at the time residing in Yárkand. *There* the story is, that Mr. Schlagintweit made friends with Khója Dílla Khan and offered to direct his operations against Yárkand, that he was forced to fly with the defeated Khója, and that he was put to death by Khója Váli Khan, for sitting before him in a disrespectful attitude, that is, with the soles of his feet turned towards the Khója. My informant, the Mírza, however, states that Mr. Schlagintweit was never in the presence of Khója Váli Khan, while with regard to his directing the operations against Yárkand, it is possible that he may have offered to assist Dílla Khan, but certainly not till he was taken prisoner and saw that his life was in danger.

7. With respect to the chances of recovering any other articles, the property of Mr. Schlagintweit, I am of opinion that little or no hope can reasonably be entertained of any further success. The Mírza informs me that he left no stone unturned in his search at Káshgar, but never succeeded in obtaining the trace even of anything besides the book; this is, however, the less to be regretted, if it should prove true that Mr. Schlagintweit sent all his Journals up to the 14th June to Kángra.[1]

8. In conclusion, I have only to express a warm hope that Mírza Ábdul Vadúd will not be left unrewarded.

Besides defraying the Mírza's expenses from Leh to Kashmír, I have made him an allowance of a rupi a day from my private purse. He accompanies me to Símla.

[1] We are unable positively to state, whether Adolphe has sent his journals to Kángra, or not; the fact, however, is, that within the last year we have received the greatest part of his journals, some of which extend as far as June 14, 1857. Also a considerable number of his drawings and collections has mean time reached us; some of the former seem to have been the contents of the two parcels which Adolphe sent to Kángra from Changchémmo on or about June 14, 1857. We particularly wish to make this statement, as Lord Hay, more anxious, than happily at present the circumstances require, added to his official letter the remark, that, "no inquiry appears to have been made respecting the fate of these parcels. This is unfortunate; even now it is not too late."

To his exertions we owe the rescue from destruction of a valuable manuscript, rendered doubly valuable by the tragic death of its writer, one of the boldest, most enterprising, and accomplished travellers of modern times.

I avail myself of this opportunity to state, with reference to a repeated assertion to the contrary which appears in the printed reports relating to Mr. Schlagintweit's death, that I never to my knowledge saw Mohámmad Amín, and certainly never recommended him to Mr. A. Schlagintweit. I believe that he was a most useful and faithful servant.

From

THE SECRETARY TO THE GOVERNMENT OF THE PĂNJÁB

to

LORD WILLIAM HAY, DEPUTY COMMISSIONER OF SÍMLA.

DATED SEPT. 21, 1861

I am directed to acknowledge your letter of the 14th instant, and to convey the thanks of the Hon'ble the Lieutenant-Governor for your exertions in procuring the Manuscript Journal of the late Mr. A. Schlagintweit.

2. His Honour authorizes a reward of 500 rupis being given to the Mírza on his arriving at Símla, in addition to his expenses being paid from the time he joined you at Leh, and sanctions the money advanced to the Mírza, being reimbursed to yourself. You are requested to submit a bill for the whole amount for the countersignature of this Office.

3. I am to add that a copy of your letter and this reply will be forwarded to the Supreme Government, with a request that they will communicate the same to the family of the late Mr. Schlagintweit in Germany, and with a suggestion that your letter may be published in the *Calcutta Gazette*.

END OF VOL. II.

INDEX.

The "Alphabetical Register of the Heights determined" is given pp. 506—25.

Abbreviations used, list of, 4–10.
Adams, Lieutenant, assistant, 4.
Adie, instrument-maker, 12.
Alps, compared with the Himálaya, 262 — villages and pasture grounds in the, 476.
Amarkántak, watershed of, 161.
Andes, towns of, 481.
Aneroids, list of, 36 — useless in great heights, 35.
Animals, limits of, 501–3.
Arc, Indian, its extent, 67.
Areas adopted, list of, 93— description of, 95, 114, 145, 161, 202, 233, 267, 308, 419.
Assám, description of, 95.
Atmosphere, limit of, 483.

Babington, Mr., 7.
Baikie, Mr., 8.
Balfour, Dr., 7.
Ball, Mr., 495.
Barometers, comparison with thermo-barometers, 34–5 — corrections of, 14–21 — construction and packing, 12–13 — list of, 12.
Barral, Mr., 482.
Bearings, 66.
Berghaus, Prof., 60, 491.
Bessel, Prof., 47.
Beverley, Mr., 482.
Birds, migratory, 503.
Bixio, Mr., 482.
Boiling-apparatus, description of, 24.
Boiling-point thermometers, *see* thermo-barometers.
Boiling-point, lowest observed, 28.
Boussingault, Prof., 483.
Brahmapútra, description of its upper course, 95–7.
Bravais, Prof., 60.
Buist, Dr., 7.
Burnes, Captain, 10.
Butler, Major, 98.
Butterflies, limits of, 504.

Campbell, Dr., 267.
Ceylon, heights in, 249–53.
Corrections for humidity, 47, 77 — for periodic changes, 48–50.
Corresponding stations, importance of, 45 — list of, 40.
Cullen, General, 7.
Cultivation, limit of, 500.
Cunningham, Major, 9, 469.
Curves, comparison of, 53, 59 — for the daily period, 52, 57 — for the yearly, 52.

Diagrams, added to Panoramic Profiles, 265.
Dihóng, 97.
Dippe, Mr., 48.
Dove, Prof., 15.
Drawings, *see* panoramas.
Drengs, in the Iravádi, 100.
Duárs, the, 145.

Eastwick, Mr., 8.
Ehrenberg, Prof., 504.
Eleazar, assistant, 4.
Elphinstone, Hon'ble Mountstuart, 10.
Erosion of rivers, effect of, 309.
Evans, Mr., 6.
Everest, Sir G., 67, 309.
Examples, for calculating barometrical heights, 62 — trigonometrical heights, 69.
Eye station, 68.

Fergusson, Lieutenant, 40.
Fisher, Lieutenant, 6.
Flaugergues, Mr., 27.
Fleming, Dr., 6.
Formulæ, various, employed, 16, 34, 35, 67.
Franklin, Captain, 6.
Fraser, General, 8.
Friedau, Chevalier de, 8.

Gárro hills, description of, 97–8.
Gauss, Prof., 48.
Gay-Lussac, Prof., 482.

Geissler, instrument-maker, 22.
Gerard's, the brothers A. and J., 7, 482.
Ghāts, eastern, 233 — western, 202.
Glacier lakes, 488.
Glaciers, lower ends of, 499.
Goddard, Lieutenant, 8.
Grain, limit of, 500.
Great trigonometrical survey, operations of the, 5.
Greiner, instrument-maker, 12, 22.
Griffith, Dr., 9.
Gubbins, Mr., 42.
Gunther, Dr., 503.

Habitation, different varieties of, 474.
Haig, Lieutenant, 8.
Hamilton, Sir R., 6.
Hanney, Colonel, 99.
Harkishen, Dr., Assistant, 4.
Hay, Lord W., 44 — recovers Adolphe's manuscript, 541–46.
Heights determined in India and High Asia, *see* the Register pp. 506–25 — effect of, 483–4 — extreme reached by man, 481–2.
Hennesser, Mr., 43.
Herbert, Captain, 9.
Himálaya, compared with the Alps, 262 — villages and pasture grounds in the, 475.
Hodgson, Major, 9.
Hodgson, Mr., 267.
Hohnbaum, instrument-maker, 36.
Hooker, Dr., 5, 28, 267.
Hough, Major, 9.
Hours, best, for barometrical observations, 59 — corrections for, 61.
Hügel, Baron, 9.
Humboldt, Baron, 471, 474, 482.
Humidity, 48.
Hypsometrical instruments, *see* barometers and thermo-barometers.

Imme, instrument-maker, 36.
Inclination of slopes, how determined, 268–9.
Infusoria, 504.
Inundations, 488.
Instruments, *see* aneroids, barometers, pocket-sextants, thermo-barometers, thermometers, theodolites, and vertical circles.
Irawádi, description of, 99–101.

Jacquemont, Mr., 9.
Jenkins, Colonel, 99.
Jhang Bahádur, 269.
Johnson, Mr., 182.

Khássia hills, description of, 97–8.
Knott, Mr., 41.

Lakes, divided by river-deltas, 441 — list of, 188 — wanting in the Himálaya, 419.
Lambton, Colonel, 67.
Latitude, its influence for barometrical heights, 45.
Laughton, Colonel, 535.
Lemessurier, Mr., 10.
Le Monier, Dr., 22.
Liebig, Baron, 59.
Locality, often neglected by observers, 3 — selection of, 4.
Lord, Mr., 10.

M'Clelland, Dr., 9.
Magnus, Prof., 34.
Mammalia, limits of, 501–3.
Máni, assistant, 4.
Marcadieu, Mr., 9.
Materials of observations, 3.
Montgomerie, Captain, 482.
Months, the best for barometrical observations, 53.
Moorcroft, Mr, 9.
Moritz, Mr., 34.
Mountains, *see* peaks.
Mountford, Captain, 7.
Muir, Mr., 41.
Mulheran, Mr., 9.

Nága hills, description of, 97–8.
Nam Keng river, 99.
Newman, instrument-maker, 12.
Oertling, instrument-maker, 12.
Oldham, Prof., 5.

Panoramas and drawings, importance of, 66 — list of, 261 — photographic edition proposed, 262 — scales employed in drawing them, 263.
Panoramic Profiles, 264.
Passes, closed in winter, 490 — description of road over them, 490 — mean height of, 489 — table of, 492.
Pasture grounds, 476, 478, 480.
Peaks, designation of, 66, 265–6 — table of, 495.
Pemberton, Captain, 8.
Pentland, Mr., 491, 498.
Permanently inhabited places, 477, 480.
Pistor, instrument-maker, 12.
Plants, phanerogamic, limits of, 501.
Plateaux, definition of, 486–7 — highest in the Karakorúm, 419 — wanting in the Himálaya, 419.
Pocket sextants, 65.
Prinsep, Mr., 22.

Rainy season, its influence on barometrical heights, 53.
Refraction, values adopted for, 68.
Regnault, Prof., 28, 34.
Reptiles, limits of, 503.
Rice, grows in Káshgar, 470.
Rivers, characteristics of, 97.
Robinson, Captain, 8, 22.
Russell, Mr., 9.

Sabine, General, 15, 482.
Salt range, the, 145.
Sanitaria, 479, 480.
Satpúra range, 161.
Savitch, Prof., 68.
Schmarda, Prof., 8.
Schubert, Mr. de, 67.
Schumacher, Prof., 47.
Scientific mission to Central Asia, 420.
Scott, Major, 7.
Scriven, Dr., 529.
Sherwill, Major, 267.
Shrubs, limit of, 500.

Signs used as abbreviations, 10.
Simons, Dr., 41.
Smith, Dr., 529, 535.
Smyth, Captain, 420.
Snow-fall, 496.
Snow-line, 497–8.
Stracheys, the brothers, 8, 497, 499.
Summer villages in the Himálaya, 476, 480.
Sykes, Colonel, 7, 22, 482.

Tables, various, used in the calculations, 71–90.
Tableau, hypsometrical, of India and High Asia, 473–505.
Tennent, Sir J., 8.
Theodolites, 65.
Thermo-barometers, corrections of, 27–35 — description of, 22 — list of, 25.
Thermometers, causes of loss of, 38 — corrections of, 38 — description of, 37 — expansion of bulb of, 27.
Thomson, Dr., 9.
Thornhill, Mr., 41.
Thornton, Mr., 5, 527.
Thuillier, Colonel, 5.
Tibet, formerly more populated, 477 — general description of, 486–7.
Tower Stations, 5.
Towns, list of the principal, 479–81.
Trebeck, Mr., 9.
Trees, limit of, 500.
Tritton, Dr., 43.
Turnbull, Mr., 6.
Tyndall, Prof., 482.

Urmston, Captain, 476

Valleys, Himálayan, description of, 309.
Vegetation, limit of, 500.
Vertical circles, 65.
Vetch, Major, 99.
Vigne, Mr., 9, 499.
Vindhia range, 161.

Walker, Major, 6, 145.
Waugh, General Sir A., 5, 43.
Webb, Captain, 9, 308, 493.
Welsh, Mr., 15.
White, Dr., 43.
Wilson, Colonel, 7.
Wind, effect of, 484–5 — its influence on barometrical heights, 45.
Wisse, Mr., 28.
Withecombe, Dr., 41.
Worcester, Major, 40.
Wood, Lieutenant, 10.

Leipzig: Printed by F. A. Brockhaus.

LIST OF PREVIOUS PUBLICATIONS OF MESSRS. DE SCHLAGINTWEIT.

A. BOOKS.

1. Untersuchungen über die physische Geographie der Alpen in ihren Beziehungen zu den Phänomen der Gletscher, zur Geologie, Meteorologie und Pflanzengeographie, von Hermann und Adolph Schlagintweit. Mit im Texte befindlichen Holzschnitten, Tafeln und Karten. Leipzig 1850, J. A. Barth . . . . . Thlr. 12 = £ 1 16 *s.*
   (Researches on the physical geography of the Alps. Leipzig, 1850. Publisher: J. A. Barth.)
2. Neue Untersuchungen über die physische Geographie und die Geologie der Alpen von Adolph und Hermann Schlagintweit. Mit einem Atlas von XXII Tafeln. Leipzig 1854, T. O. Weigel . . . . . Thlr. 22 = £ 3 6 *s.*
   (New researches on the physical geography and geology of the Alps. With an Atlas. Leipzig, 1854. Publisher: T. O. Weigel.)
3. Épreuves des Cartes géographiques produites par la photographie d'aprés les reliefs du Monte Rosa et de la Zugspitze par Adolphe et Hermann Schlagintweit. Leipzig 1854, J. A. Barth . . . . . Thlr. 4 = £ - 12 *s.*
   (Photographic maps taken from models of Monte Rosa and the Zugspitze. Leipzig, 1854. Publisher: J. A. Barth.)
4. Results of a Scientific Mission to India and High Asia. Undertaken between the years 1854 and 1858, by order of the Court of Directors of the Honourable East India Company. With an Atlas of Panoramas Views and Maps. Vol. I. Astronomical Determinations of Latitudes and Longitudes and Magnetic Observations during a Scientific Mission to India and High Asia, by Hermann, Adolphe, and Robert de Schlagintweit. Leipzig, 1861. F. A. Brockhaus . . . . . Thlr. 26⅔ = £ 4 0 *s.*

B. PLASTIC PUBLICATIONS.

1. Relief des Monte Rosa und seiner Umgebungen. Nach den Karten, Profilen und landschaftlichen Ansichten von Adolph und Hermann Schlagintweit. Im Massstabe von 1 : 50,000. Galvanisirter Zinkguss. Mit einem Erläuterungsblatte in Royal Folio als Beilage. Leipzig 1855, J. A. Barth . . . . . Thlr. 24 = £ 3 12 *s.*
   (Galvanized model of Monte Rosa and its environs. With a map. Leipzig, 1855. Publisher: J. A. Barth.)

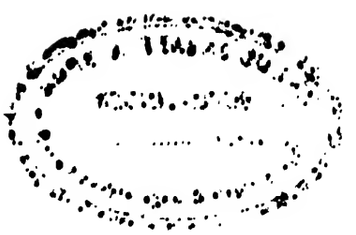
2. Relief der Gruppe der Zugspitze und des Wettersteines in den bayerischen Alpen. Nach aequidistanten Horizontalen aufgenommen und ausgeführt von Adolph und Hermann Schlagintweit. Im Massstabe von 1 : 50,000. Galvanisirter Zinkguss. Mit einer geologischen Karte von Adolph Schlagintweit. Leipzig 1855, J. A. Barth . . . . . Thlr. 20 = £ 3 0 *s.*

(Galvanized model of the Zugspitze and the Wetterstein, in the Bavarian Alps. With a geological map. Leipzig, 1855, J. A. Barth.)

Metallic casts of Ethnographical Heads from India and High Asia, by Hermann, Adolphe, and Robert de Schlagintweit. This splendid collection, dedicated by permission to Her Majesty the Queen of England, consists of 275 facial casts and 37 casts of hands and feet, which have all been taken from living people. Publisher: J. A. Barth, Leipzig. Price of the entire series . . . . . Thlr. 2348 = £ 350 4 *s.*

C. PHOTOGRAPHIC PUBLICATION.

Stereoskopische Bilder nach den Schlagintweit'schen Reliefen daguereotypirt im Massstabe von 1 : 400,000 der Natur. *a.* Der Monte Rosa und seine Umgebungen. *b.* Gruppe der Zugspitze und des Wettersteins. Leipzig 1855, J. A. Barth . . . . . Thlr. 3 = £ — 9 *s.*

(Stereoscopic views taken from plastic models; *a.* of Monte Rosa; *b.* of the Zugspitze. Leipzig, 1855. Publisher: J. A. Barth.)

ABDUL JABBER & BROS
BOOK-BINDER
Date 5.10.58
19 Bagan Lane